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Vincent's Disease In Dental Practice

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Although Vincent's disease was quite common in the United States Army during the World War, cases of this form of oral pathology are by no means infrequent in civilian practice. However, its ravages do not appear to be so extensive and severe in patients in civilian practice as in those in army service. Occasionally, on the other hand, we do meet with an aggressive, rapid and fulminating case.

Etiology

This disease is associated with the presence of a fusiform bacillus

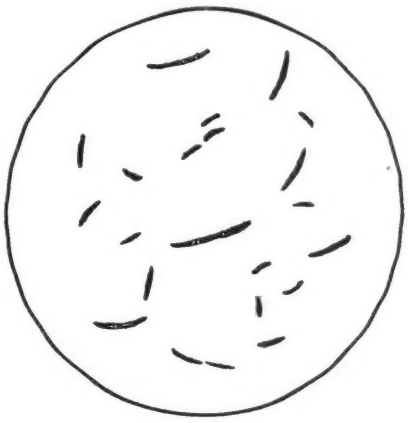

Fig. 1
Bacilli fusiformis (diagrammatic).

and a spirillum which were recognized and described by Vincent (1898-1899), and for this reason it goes under the name of *Vincent's disease.*

The commensalism of these fuso-spirillary organisms during decreased resistance of the oral mucosa produces the disease. These organisms have been found in diphtherialike affections of the fauces, a condition now known as *Vincent's angina.* The presence of similar organ-

isms has been noted not only in such necrotic inflammations as noma, but also in pulmonary lesions and in abscesses in other parts of the body. In these the pus is very foul-smelling.

It is believed by some investigators that the fusiform bacilli and spirilla are not morphologically different organisms, but are different forms in the life cycle of one organism. From a clinical standpoint, however, it may be stated that this question is hardly important.

Often these fuso-spirillary organisms can be found in the mouth as saprophytes. It is thought that certain factors, such as neglect of mouth hygiene and greatly lowered resistance due to fatigue, chill, exposure and wasting diseases, afford an opportunity for these organisms to become pathogenic. The incidence, for example, is greatly increased

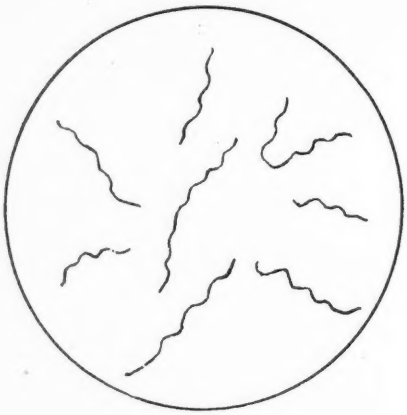

Fig. 2
Spirilla Vincenti (diagrammatic).

under military conditions. Indirect infection from common drinking cups and eating utensils, poor food, bad air, excessive use of tobacco and alcohol are other predisposing factors in the development of the disease which deserve mention.

The disease is easily communicable and is spread through discharges from lesions and through carriers.

Pathology and Diagnostic Symptoms

The red, swollen, glistening gums, engorgement of the interdental papillae, the formation of ulcers covered with a grayish-white membrane, easy and profuse bleeding of the gums, looseness of the teeth, salivation and fetid breath are characteristic manifestations of this disease and make the diagnosis not difficult. Often the interdental papillae are com-

pletely destroyed, more especially those between the mandibular anterior teeth, but those between the bicuspids and molars are often attacked and damaged. When the ulceration is fully developed, the gums have a dirty-white appearance, which resembles the slough produced by a carbolic acid burn. The infection may be bilateral but is often unilateral, and frequently it is limited to special irritated areas as, for example, the flap of tissue above a partially erupted third molar. It has a predilection for attacking the gums about the mandibular anterior teeth and for points of lowered resistance in the mouth, which may be caused by irritations from protruding inlays and fillings, ill-fitting crowns, rough porcelain facings of bridgework, jagged teeth, etc. The

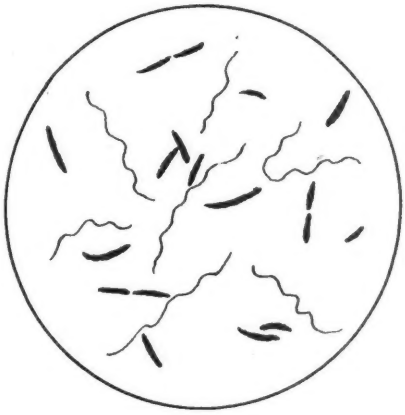

Fig. 3

Film preparation from a case of Vincent's infection showing fusiform bacilli and spirilla (diagrammatic).

tongue is not commonly affected, and the disease is more common on the buccal and labial surfaces of the gums than on the lingual.

As has been previously stated, profuse salivation is a common symptom, and frequently there is drooling of bloody saliva at night. The oral secretions are also quite ropy during this disease, and when an instrument is placed in the mouth, it draws out the saliva in viscous filaments.

An increased pulse (90-100 per minute), fever (100°-103°), extreme pain, involvements of the lymph nodes of the neck, insomnia, headaches, malaise, anorexia and general weakness are some of the conditions which often accompany this affection.

Of most diagnostic value is the presence of the typical bacillus fusiformis and spirillum in stained smears, and this renders the diag-

nosis positive. A smear made from the surface of actually infected tissues on a clean microscopic slide and stained with Loeffler's methylene-blue or with weak carbol fuschin will show up the organisms to advantage. They are easily recognized. The fusiform bacilli are thin rods, straight but sometimes slightly curved, and are tapered at the extremities. The central portion often stains less deep than the extremities and not infrequently shows unstained points and granules. The spirilla are long, delicate organisms showing several irregular curves. In appearance they resemble the Spirochaeta refringens and similar organisms found in gangrenous conditions. They stain less deep than the bacilli. They are found in the greatest number in the deeper layers of the infected tissue and in advance of the bacilli.

Prognosis

The prognosis is usually favorable, except when the disease occurs in the late stages of tuberculosis and other wasting diseases. It is indeed fortunate that this destructive disease is amenable to careful treatment, but the denture once attacked is never quite up to normal, since complete regeneration of the affected tissues does not occur. More especially, when the ulceration attacks and invades the bone in the interdental areas, deep deficiencies are produced, even when the disease is checked.

In an uncomplicated case the disease may be expected to clean up within six or seven days with proper treatment. In some cases suppuration is present, due to a secondary infection caused by ordinary pyogenic cocci. In most cases this undesirable complication prolongs the duration of the disease.

Treatment

Numerous remedies have been suggested for the treatment of Vincent's disease. Silver nitrate, argyrol, copper sulphate, potassium permanganate, methylene blue, iodine, Fowler's solution, gentian violet, potassium chlorate, mercurochrome, an emulsion of salvarsan in glycerin and mercuric cyanid are some of the drugs used and their respective advocates claim great success with each.

In the treatment I have found one solution which, in my hands, has proved to be a sovereign remedy. I am recommending it after eleven years of experience in treating Vincent's disease in both army and civilian practice, and it was eleven years ago that this affection first made itself manifest among American troops in an epidemic nature. The solution to which I refer is a glycerinated zinc iodide solution. Its formula is as follows:

Zinc Iodide	20 parts
Tincture of Iodine	20 parts

Distilled Water	10 parts
Glycerin	50 parts

The technic is simple. The mouth is first gently syringed with a solution of equal parts of hydrogen peroxide and water. This solution has the advantage of mechanically cleansing the interdental spaces by foaming and its action on the pathogenic bacteria. Each ulceration is then mechanically cleaned out. The involved areas are isolated and dryness is maintained with cotton rolls. The cavities of the ulcers are painted with a pledget of cotton moistened with the zinc iodide solution. This solution is freely applied in between the teeth with a broach wound with cotton. Pellets of cotton saturated with the solution are placed between the teeth, if the interdental papillae are destroyed, and are allowed to remain for three minutes. It is advisable always to maintain dryness so that the solution will not be diluted by the saliva and its therapeutic action interfered with. The solution is applied once and in some cases twice daily.

For home treatment the patient is instructed to rinse the mouth with a freshly prepared solution of sodium perborate (a teaspoonful in a half-glass of warm water) every three hours. Instead of this solution one of diluted hydrogen peroxide may be used, and this is prepared by adding three tablespoonfuls of the peroxide and one teaspoonful of baking soda to a half-glass of warm water. Patients are advised to discard the old infected toothbrush and are instructed to clean the teeth with sterile cotton swabs or gauze saturated with the prescribed mouthwash. Dental floss, carefully used, is recommended. The importance of mouth cleanliness is stressed, as residual decomposing food particles aggravate the condition and prevent the healing of the disease.

Following are the reports of some cases which were selected at random from our files:

Case 1

Patient—E. J., male, salesman, aged 28. Positive Vincent's. The case was bilateral. Gums were tumefied and glistening. The ulcerations were confined to the gingivae, constituting a real marginal gingivitis. There was easy and profuse bleeding of the gums. All the teeth were loose. There were salivation, fetor ex ore and extreme pain.

The gums were carefully dried and painted freely with the zinc iodide solution, and this procedure was repeated six times in as many consecutive days. On the sixth day the teeth were also thoroughly scaled and cleansed and the case was dismissed. A dilute solution of hydrogen peroxide was used during the treatment.

Case 2

Patient—K. McL., female, stenographer, aged 25. Positive Vin-

cent's, non-ulcerative type. Interdental papillae and gums were red and swollen. Gums were very tender and bled easily. Infection was localized around the six maxillary and six mandibular anterior teeth. The mandibular teeth were very loose. Five applications of the zinc iodide solution were made and such good improvement was noted that the patient did not complete the full treatment. One month later she appeared with a recurrence of the infection. After six further applications of the solution the case was dismissed. A solution of sodium perborate was used during the treatment as a mouthwash.

Case 3

Patient—S. G., female, bookkeeper, aged 21. Positive Vincent's. Interdental papillae between the mandibular anterior teeth were completely destroyed. The teeth were very loose and moved easily when slight pressure was applied to the gums. There was salivation, and the breath had the usual fetid odor. There was extreme pain when eating. Nine applications of the zinc iodide solution were made to the infected gums, the teeth were thoroughly scaled and cleansed and the case was dismissed. A dilute solution of hydrogen peroxide was used as a mouthwash during the treatment.

Case 4

Patient—L. T., male, aged 23, private in the Army and stationed at the U. S. Armory, Springfield, Mass. Positive Vincent's—ulcerative type. There was a horizontal sectioning of the interdental papillae in the areas of the maxillary and mandibular anterior teeth and the mandibular bicuspids. The gums bled easily and profusely. The teeth were very loose. Pain, salivation and fetor were present. This case was severe. Fourteen treatments with the zinc iodide solution were made, two each day for seven consecutive days, and the patient was given a thorough prophylactic treatment and dismissed. A solution of sodium perborate was used as a mouthwash during the treatment.

Case 5

Patient—E. C. S., male, physician, aged 45. Positive Vincent's. This was a severe case of infection. The interdental papillae were destroyed in the area of the mandibular anterior teeth, also between the left maxillary first and second molars and between the right mandibular second and third molars. The gums were red, swollen and ulcerated in the areas which had immediate contact with the necks of the teeth. These areas were covered with a yellowish-gray, foul-smelling exudate. The teeth were so loose that there was intense pain when eating. Thorough mastication of food was impossible. There were salivation and fetor oris. The pain was so intense at night as to cause insomnia.

The mouth was carefully syringed with hydrogen peroxide and water in equal parts. Then seven thorough and systematic applications of the zinc iodide solution were made and the case was dismissed. Marked improvement was noticed within twenty-four hours after the first treatment. A sodium perborate mouthwash was used during the treatment.

Case 6

Patient—A. O'D., female, bookkeeper, aged 26. Positive Vincent's —unilateral case. Small ulcerations at gingivae and mucosa in the area of the left mandibular first and second molars and the left maxillary first and second molars. There were pain, salivation and fetor. Five thorough treatments with the zinc iodide solution were given, one each day. Then the teeth were given a complete prophylactic treatment, and the case was dismissed. A solution of hydrogen peroxide was used during the treatment.

Case 7

Patient—M. E. H., female, stenographer, aged 21. Positive Vincent's—ulcerative type. Large ulceration in area of the left maxillary cuspid. This natural tooth was missing, but was replaced by bridgework. The porcelain facing of this bridge was rough and sharp and had poor occlusion (traumatic). The Vincent's infection unquestionably had its inception at this continually irritated area of gum tissue. The bridge was removed and eight treatments of zinc iodide solution were applied to the gums in as many days. On the ninth day the teeth were scaled and cleansed and the case was dismissed. Sodium perborate was used as a mouthwash during the treatment.

Case 8

Patient—E. DeF., female, housewife, aged 40. Positive Vincent's. The maxillary teeth had been replaced by a full artificial denture. The right mandibular bicuspids and anterior teeth were the only natural teeth in situ. These teeth were very loose and painful to touch and were preventing the patient from sleeping. The gums bled easily upon the application of slight pressure. The ulcerations were confined to the gingivae. The interdental papillae were destroyed and looked as if they had been clipped with a dull pair of scissors. Drooling of the saliva was present. Seven treatments with the zinc iodide solution were given, one each day. Improvement was noted within twelve hours after the first treatment. Sodium perborate was used as a mouthwash during the treatment.

Case 9

Patient—C. C., male, secretary, aged 28. Positive Vincent's—

ulcerative type. The ulcerations appeared in the area of the left maxillary cuspid and first and second bicuspids. The left maxillary cuspid had a large gold inlay which protruded from the cavity and irritated the gum. It appeared that the disease had its inception at this irritated area. The inlay was carefully trimmed and polished. Twelve treatments with the zinc iodide solution were necessary before this patient was dismissed. On the last day of treatment the teeth were thoroughly scaled and polished. Sodium perborate was used as a mouth-wash during the treatment.

Case 10

Patient—S. L. R., male, captain in the United States Army, aged 38. Positive Vincent's. The patient presented with a local tenderness about the left maxillary central and lateral incisors and complained of a toothache attributable to the left maxillary central incisor. A fully developed ulceration had destroyed the interdental papillae and had also invaded the bony septum between the left central and the lateral incisors. The gums of the maxilla and the mandible were swollen and glistening. Salivation, pain and fetor ex ore were present. Ten applications ware made before this case was cleaned up. Sodium perborate was used as a mouthwash during the treatment.

Surgery Contra-indicated During Acute Stages of Infection

Scaling of the teeth, the use of local anesthetics, extractions and other forms of surgery should be avoided while the disease is acute, as untoward results will occur. Such procedure should be deferred until the symptoms subside and improved conditions warrant these operations. Scaling the teeth during acute stages aggravates the condition and has a tendency to spread the infection. Extractions may be followed by panosteitis, necrosis and Ludwig's angina. Local anesthesia with novocain-suprarenin combinations or by the ethyl-chloride spray is contra-indicated. The local check to the circulation (hemostasis) and the effect of suprarenin on blood-vessels are almost invariably followed by the spread of the disease, and freezing the infected tissues with ethyl chloride is associated by still greater risk.

Further Remarks on the Disease

Vincent's infection is peculiar to man; at least, experiments on animals are negative. Secondary and recurrent attacks occur, indicating that there is little or no immunity conferred. The disease is more common than ordinarily supposed.

Oral filth appears to be the most important predisposing factor to Vincent's infection. A septic mouth with carious teeth, putrescent teeth, abscessed teeth, teeth encrusted with heavy deposits of calculus,

with inflamed or suppurating gums, is the type of mouth which forms an ideal incubator in which the fusiform bacilli and the spirilla can flourish.

There is little doubt that the oral lesions of Vincent's infection precede those of the fauces. In other words, if a case of ulcerative gingivitis is neglected, the infection may spread to the fauces, along the trachea and bronchi into the lungs, and serious sequelae may result. Here is an important instance where dentistry can play a significant rôle in preventive medicine.

Summary

Vincent's infection of the oral mucosa is an expression of decreased resistance of the mucosa to the fuso-spirillary symbiosis. Besides local treatment, factors which build up the general condition are to be considered. Fresh air, rest and a good diet, consisting of fruits and vegetables, are important. Other than this, my treatment consists of local applications of the zinc iodide solution, which I have found to be remarkably efficacious.

Intravenous injections of arsphenamin have been recommended in the treatment of Vincent's infection. A case has been reported, however, in which this disease developed the day following the third injection of arsphenamin in as many weeks. This does not speak well for intravenous medication as a cure for the disease. In another case the patient in the secondary stage of lues had received intragluteally comparatively large doses of sulpharsphenamin every other day for three injections. She had received no mercury. Five days after the third injection Vincent's infection was present. I have tried topical applications of stabilized arsphenamin solutions, but my results throw much doubt on the value of this drug either locally or intravenously in the treatment of Vincent's infection.

I have found that the local application of the zinc iodide solution to the infected areas is a specific in the treatment of Vincent's disease. In the majority of cases the disease yields to six or seven daily applications, which are of course thoroughly, carefully and systematically carried out. Marked improvement has been noticed within from twelve to twenty-four hours. In two or three days the pain ceases, fetor of the breath disappears, and the gums begin to look healthy.

In some cases I vary the treatment. A 7% solution of chromic acid is used in the variation. Sometimes, when too much treatment with the zinc iodide solution is made, the disease does not respond well to its use. It is possible that a tolerance is developed on the part of the organisms for the same solution if it is used continuously. The treatment should be varied to meet the symptoms, and it is therefore advisable to use

chromic acid 7% alternately with the zinc iodide solution, but I have always completed the treatment with the zinc iodide solution, even in the severest cases.

In closing, I wish to advise against the use of strong caustics in the treatment of Vincent's disease. They are contra-indicated, because they produce necrosis and invite further infection, for the spirilla and bacilli fusiformis flourish in dead and decomposed tissue. The zinc iodide solution, on the other hand, is bland, effective and healing.

1597 Main Street

[PULPS OF SOUND TEETH INFECTED]

In order to ascertain whether a tooth, if perfectly covered by cementum and enamel, could have micro-organisms in the pulp, I started a year or so ago a number of experiments in St. Michael's Hospital, Toronto. In a hospital of this kind a great many teeth are extracted, some of which are vital. I chose only teeth that were undoubtedly vital and which had not a break in the enamel or cementum so far as we could find. We obtained thirty-four specimens and I was astonished to find that 65% of these teeth contained micro-organisms. Consequently, the theory that perfect teeth do not contain micro-organisms, and that bacteria enter the pulp only when enamel is ground off, or through cavities, or by way of pockets, was not borne out by the investigation.

—McDonagh.

The Muco-Periosteal Flap

Indications for its Use in Eradication of Periapical Infections

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In common with every profession which boasts of some degree of age, dentistry possesses and cherishes heritages in the form of ideas which have been handed down from year to year and, indeed, from century to century. Some of these ancient concepts are the results of much empirical experimentation, keen observation, and sound judgment. Such are the knowledge of the therapeutic uses of heat and cold and balneology. Other old ideas, however, are the shreds of superstitions and the remnants of nearly forgotten ministrations of witch doctors and magic healers. An example of the latter is the widespread notion that one must not have teeth extracted in winter for fear of "catching cold" in the socket. Another of this sort is the concept that night air is dangerous, which is evidently deeply imbued in a great part of the present population.

In this article I wish to throw down the gauge of combat against the mistaken notion that is ingrained in the major part of the personnel of the dental profession that the removal of a tooth will automatically remove from the alveolar process all vestige of infection which surrounds the tooth, irrespective of the size, shape and position of the roots and of the periapically infected area. This belief was not unreasonable and illogical twenty-five or thirty years ago, when the x-ray was not used to check up post-extraction conditions. When a tooth had been extracted and the patient thereafter felt neither pain nor discomfort, there was no cause for suspecting that all was not well in the alveolar process. If years later some of these "cured" patients developed maxillary or mandibular cysts of such size as to give visible and palpable evidence of their presence, no one connected this pathological condition with teeth that had been extracted years before.

Pain used to be considered an excellent symptom of disease. It was a sign-post pointing to the seat of the trouble in any given case. If a tooth hurt, it was diseased. When the tooth was removed and the pain subsided, the disease was cured *ipso facto*. No more pain, no more disease. That such an undignified, insignificant and totally-to-be-disregarded part of the body as the dental apparatus could originate a pathological condition in deeper parts of the jaws—still more sacrilegious, in a distant part of the body—was unthinkable. Teeth were organs to be used merely for chewing and sometimes also for the altogether ungodly purpose of enhancing the appearance. If a tooth gave trouble, why, out with it, and perhaps the sooner the better! One could very well do without it! When the offending tooth was out, the

socket pained a few days, perhaps bled a few days, the jaw swelled, and then pain, bleeding and swelling subsided. The socket closed, the gum healed over, the depression filled in to a great extent, and the entire unpleasantness connected with that tooth was gone.

Centuries passed, with no disconcerting evidence to annoy the dental practitioners in their complacent acceptance of their own dictum that removal of a tooth terminated all disturbance caused by that tooth. Then, in the later 1800's, a wonderful tube was constructed, whereby an electric current could be made to produce mysterious rays which would pass through the human body, and by means of which the internal structure of bones could be observed and studied. A Professor Roentgen was instrumental in completing the experimental work upon this tube, and the unknown emanations were therefore called roentgen-rays or, by some, x-rays. Medical men gradually came to rely upon the roentgen-ray apparatus in the diagnosis of bone conditions, especially fractures. After a time dentists used the ray to study the teeth and their supporting bony structures. Dr. C. Edmund Kells was one of the first men of our profession to utilize this instrument for the benefit of dental patients.

Soon disconcerting observations began to be reported. Many teeth with root-canal fillings, even those that had been inserted with infinite attention to the minutest details, began to show areas of rarefied bone about their apices. Cultures were made from material obtained from these areas, and it was demonstrated that these periapical areas were usually infected. Medical men began to be frankly and openly dubious as to the ultimate value of our root-canal fillings, pivot teeth, and bridgework. Lay people also became suspicious of teeth that had been rendered pulpless. Finally, the consensus of opinion, medical, dental and lay, was that these teeth with rarefied regions of bone about their apices must be removed for the sake of the safety of the body as a whole. Following this new line of thought, dentists have been removing teeth that showed these bacteria-laden areas. Neither physicians nor dentists nor laymen sufficiently considered the possible fate of the granuloma, or even the radicular cyst, after the removal of the tooth concerned in the original appearance of the infection. The old theory was still adhered to—"when the tooth is out, all pathology originated by the tooth is conquered." But is it?

Roentgen-ray check-up of patients having such teeth removed shows far too frequently the continued presence of these alveolar abscesses long after the removal of the offending teeth. Many periapical areas of infection will disappear after simple dental extraction. But we have no right to assume that our patients are going to be of the fortunate majority. It is our duty to do with our hands and our instruments everything that we possibly can to lighten the work of nature.

This newest disquieting thought which has necessitated the changing of our inherited ideas is the subject of this paper. Stated briefly, it is this: "Simple extraction of teeth with curettage through the socket is inadequate treatment in those cases where the x-ray shows the periapical rarefaction to be larger than the opening that will result when the tooth is withdrawn."

In the treatment of many cases of this kind I have come to the conclusion that it is impossible in all instances to remove every trace and vestige of a granuloma or radicular cyst by curettage through the tooth socket. There will often be a right angle or an angle greater than a right angle where the floor of the rarefied area joins the tooth root. No curette will enable the operator to remove through the socket that part of the sac that adheres to this corner. A granuloma or cyst sac is frequently not of a symmetrical, rounded shape, but will have pseudopodlike extensions going out from the main cavity at an unexpected angle. It would be most difficult, if not entirely impossible, to clear out this little excavation by means of a curette extending through the tooth socket.

Some operators claim that their sense of feeling is so highly developed that they can determine by the "feel" of their instrument whether or not they have cleared the cavity of all soft material. This argument is fallacious. If the instrument cannot reach a certain portion of the rarefied area, the operator cannot determine how the instrument feels in this area. I will willingly grant that the operator can tell by his sense of "feel" whether or not he has thoroughly cleared every part of the area which he can reach with his instrument. But my opinion is that the instrument inserted through the socket cannot reach all the parts of the softened area. A well-developed tactile sensitiveness is of great assistance in surgery, but there is no reason for depriving the patients of the benefits that will be theirs when this sense of touch is complemented by the sense of sight.

No amount of tactile discrimination can so satisfactorily convince a conscientious operator of the thoroughness with which he has done his work as an actual sight of the field of his operation thoroughly divested of all softened, necrotic material and resplendent in walls of shiny, healthy bone. Therefore I assert that the following policy should be invariably followed in the eradication of periapical dental lesions:

"Where the area of periapical rarefaction is larger than the opening which will result when the tooth is removed, the operator should not trust to his ability to curette through the socket, but should lay back a muco-periosteal flap so that he may actually see the result of his instrumentation."

I do not clearly understand why dentists do not more often give their patients the advantage of the open-flap method of operating. There

is nothing particularly difficult about this procedure. The open-flap operation presupposes the dentist's willingness and ability to observe aseptic precautions, for in this procedure neither patient nor dentist is likely to escape unscathed in the face of filthy operating technic, whereas many ordinary extractions are accomplished with no attention to asepsis and with apparently no bad results. The wider the exposure of the field of operation, the greater is the necessity for care in order to prevent bacterial ingress. However, the unwillingness of some operators to attend to the proper details of a procedure should weigh neither one way nor the other in the determination by a conscientious dentist as to the method of choice.

A second objection to this procedure is that it takes more of the operator's time. (Please note that I say "operator's time," and that I make no mention of the patient's time. If the shorter operation is chosen, the patient is likely to be under the necessity of having the work done over again.) I will answer this "time" objection by asking a question. How do we pay for the maintenance of our dental offices, ourselves, and our families, except by selling our time to our patients? When the advantages of the flap operation are explained to a patient, my experience is that he is more than willing to remunerate the dentist for the additional time given his case.

The third and last objection which might be raised against the flap operation is that more post-operative visits and more care are required following this procedure than following ordinary extraction. I will agree to this objection, and willingly. Anything that will cause operator and patient to give more attention to a post-operative wound in the mouth than is now universally given is salutary and not a disadvantage. I disapprove of the universal habit, in simple extractions, of dismissing the patient *sine die* after the tooth is out. The removal of a tooth produces a bone injury which requires expert supervision until it is well on the way to recovery. Many post-operative complications would be avoided or mitigated if all extraction sockets were seen the day after extraction and every second or third day following as long as soreness, swelling or pus formation persists. I cannot imagine a general surgeon scraping a pathological area, ½ by 1 inch, out of a tibia, for instance, and then permanently dismissing the case with the injunction to "let me know if you have any trouble." The compelling of the dentist to supervise a socket until healing is accomplished is an advantage of the flap operation and not a detriment to it.

The following two cases from actual practice will illustrate very nicely the point which I have endeavored to bring out. The first case is that of a lady in the early sixties. Roentgen examination disclosed a cystic area above the right upper central and lateral incisors. The area was about the size of a small lima bean and of approximately the

same shape, with the concavity directed downward and the roots of the two teeth projecting upward into the floor of the cyst. I advised the patient of the necessity for laying back a flap in order to eradicate the infection, accenting the fact that, as the area would be thoroughly anesthetized, she would feel no pain. She was somewhat doubtful and replied that she would take the matter into consideration and telephone later for an appointment. Four months later I saw her again. She reported that she had been made somewhat apprehensive by the idea of having the flap made and had gone to a dentist who assured her that there was no necessity for such a procedure. "Foolishness!" he asserted, "and possibly the desire for a high fee!" So the good lady had her two teeth extracted by the dentist, who said that he could readily clear out the area by curetting through the socket. The sockets had closed and all was apparently well, except in the patient's mind. She

Fig. 1

remembered what I had told her about the utter impossibility of clearing out the infectious area through the socket, and this worried her, so at this visit, four months after her first appearance, she wished to have me ease her mind by telling her that all was well. I told her that I certainly hoped that the highly improbable had occurred, and that the bone would show no further evidence of pathology, and I advised another x-ray examination. The new x-ray films unfortunately showed that the cystic area was larger than before, dipping down into the upper half of the regions formerly occupied by the central and lateral roots. By laying back a muco-periosteal flap I was able to see and to shell out in its entirety a large cystic sac. How much easier it would have been for the patient if this had been done at the time of the extraction of the teeth!

Fig. 1 shows a very similar case. The film of which this is a positive print was taken during the last week in October, 1927. Three teeth were extracted at the same time, the right upper central and

lateral incisors and the left upper central incisor. The first week in December, about six weeks after the extraction of the teeth, the patient came to me wishing advice as to whether the infected material had been entirely removed from the socket. The patient is an intelligent young woman, about thirty years of age, in the first stages of pulmonary tuberculosis. Knowing that all her resistance will be required to combat the spread of the tubercular condition, she wished to make absolutely certain that the teeth would not be a drain on her and an impediment to her early return to health.

She told me that no muco-periosteal flap had been laid back at the time of the extraction of the two teeth. These teeth were a right upper central and lateral incisor, as in the first case mentioned. I put the problem up to the patient, telling her that in my opinion the cystic sac was still present, but that there was a slight possibility that my opinion might be wrong. I told her that there were two ways of checking up

Fig. 2

the condition: (1) to have roentgen films made at intervals to determine whether or not bone regeneration were taking place, or (2) to operate at once, lay back a flap and actually inspect the area, clearing it out if that were found necessary.

The patient turned these facts over in her mind and came to the sensible conclusion that her health was in so precarious a condition that she could not afford to temporize. I laid back a flap. I made it large enough so that I could inspect the left upper central incisor socket region as well as the right upper central and lateral incisor regions. I have today, in an old cement bottle, three pieces of cystic membrane that I curetted out of these areas. These infective membranes had obviously been discommoded not the slightest by the extraction of the three teeth and by whatever procedures were used thereafter.

The other prints are examples of conditions which require more thorough surgery than simple extraction. Fig. 2 pictures an area of destruction about an upper lateral incisor. The central, despite its appearance of pyorrhetic destruction of alveolar support, was tight.

Upon operating I found that it was not involved in the periapical destruction that had taken place about the lateral incisor. Without a flap I could not have been certain as to whether or not the central was involved.

Figure 3 shows a molar with an extensive area of periapical rarefaction. Note that the rarefied region is not rounded and symmetrical, but is very irregular in outline. Even with the laying back of a flap and the removal of part of the outer plate of the alveolar process, it was a difficult procedure to clear out all the softened, necrotic bone. Without a flap it would have been impossible.

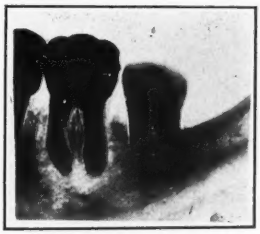

Fig. 3

Figure 4 shows a necrosed area about the apex of a cuspid. This is a good example of a case in which an operator is not consulting his patient's best interests by doing a simple extraction.

Figure 5 shows a condition about the apices of two teeth of an elderly patient who suffered severely from headaches and general weakness. It seems to me that this is a case which would be especially tempting to an operator who prides himself upon his tactile discrimination

Fig. 4

Fig. 5

with a curette thrust into a periapical area through a tooth socket. And yet the flap operation enabled me to see and remove a great deal of softened, infected, uncircumscribed bone which would undoubtedly have escaped the blade of a blindly searching curette.

Figure 6 is one which I include for its general interest. The two centrals with partially filled root canals would certainly make many an able operator gaze upon the radiolucent area with distrust, if not with

Fig. 6

absolute condemnation. Nevertheless, further roentgen examination of the area showed the radioparent area to be entirely dissociated from the centrals and, in fact, to be an unusually large incisive foramen.

Conclusions

The raising of a muco-periosteal flap is not a difficult operation and is the operation of choice where roentgenograms of a tooth show an area of rarefaction greater in width than will be the opening that will be present as a result of the extraction of the tooth involved.

2877 Grand Concourse.

The Rise and Fall of Oral Hygiene In Bridgeport

By George Wood Clapp, D.D.S., New York, N. Y.

How Two Health Officers Viewed the Dental Clinic

This chapter tells the story of two very unlike health officers who served the city of Bridgeport from 1916 to 1928 and of the influences exerted by them on the preventive dental clinic.

A Big Man Comes to Bridgeport

In 1916, when the dental clinic had been in operation for three years, Walter H. Brown, M.D., came to Bridgeport as City Health Officer. He is described by those who remember him well as of unusual ability, broad-minded, and keenly appreciative of every effort that made for the health of the city, without insisting that such efforts should arise from his initiative or that they should shed lustre directly on him. In other words, he was not jealous of his reputation, but was perfectly willing to throw it into the ring and defend it by his acts. When you find one like that, he is likely to be a real man.

It is not at all surprising that some who are familiar with the internal political life of the city say that a man of such caliber, could not work under the conditions imposed by the political gang then in control (these words are taken verbatim from the story as it was related to me by one unusually well informed politically), and that he resigned in 1919 to join the Rockefeller Foundation.

Dr. Brown's opinion of the value of the dental clinic is important for several reasons, among which are the following:

(1) It was conducted under the Board of Health, but entirely by dental direction.

(2) It required a large annual appropriation.

(3) His term as Health Officer included the period of the influenza epidemic, which took so heavy a toll in all our cities. He used the services of the hygienists in fighting the infection and established a very low death rate for the city of Bridgeport, in spite of its crowded condition and the illiteracy of many of the newly-arrived munition workers.

In order that there might be no question as to just what Dr. Brown thought of the work of the dental clinic in general and of its service in paving the way for successfully combating the influenza epidemic, he was addressed upon the subject and in July of this year wrote from his office at Stanford University, as follows:

It is a real pleasure for me to review from my memory, and from my records at hand, the program of dental hygiene as it was in operation in the schools of

Bridgeport, Connecticut, during the period in which I was Health Officer of that city. In order that my opinion may be more valuable, I will review briefly what I think were the direct benefits, the indirect effects, and some specific examples of the relation of this work to the influenza epidemic.

I came in contact with the program of dental hygiene after it had been in operation for about three years and had the opportunity of seeing its development and its direct benefits to at least 25,000 school children during that period. There is no question in my mind that in the line of direct benefits these children were greatly improved in their general health, as well as by the reduction to a very marked degree of the amount of dental decay present among the school children. This latter statement is corroborated by the five-year report, in which it was shown that over 30% reduction had been accomplished in the dental decay. There is, in addition, no doubt but that during the course of this period focal infection, which is such an important factor in general health, was greatly relieved by the program.

The indirect effects are to my mind of even more importance. By indirect effects I mean the personal educational program that was carried out by Dr. Fones through his trained dental hygienists. When we remember that each child, over a period of time, received two prophylactic treatments annually for his teeth, we must realize that it afforded an opportunity for two definite personal contacts. It is also to be remembered that the dental hygienists, while they did stress clean teeth, had been instructed, too, and very admirably performed the function of teaching the relationship of general hygiene to health. This, to my mind, was one of the most intensive and definite pieces of educational work in health that could possibly be done, and, as I have stated previously, it formed a sound foundation, when taken in connection with the general or group educational work carried on by Dr. Fones, for any of the work which the Department of Health in general was attempting to carry out.

Specifically, when the first influenza epidemic swept over Bridgeport, it became evident to me as Health Officer that the only real means of combating it was by educational methods. I therefore instituted a program of intensive education. I am of the opinion that, aside from the very great amount of work which was done definitely by the dental hygienists under Dr. Fones's direction at the time of the epidemic, one of the reasons why Bridgeport was so ready to take the word of the Board of Health that the keeping open of the schools, the theatres, and the churches was the best method of controlling influenza was due in a great measure to the fact that they were accustomed to receive instructions from the Department of Health and had faith in their pronouncements on account of their relationship with Dr. Fones's Department, as one Division of the Board of Health, and also on account of the increased relationship which the whole Department of Health had with the individual home.

To sum up, I should say that in my opinion the work of dental hygiene in Bridgeport made an immense contribution directly to the individual child, on account of dental decay and focal infection, and a very great contribution to the health education of the individual child, not only about his teeth but about his body in general. . . .

One may very justly question the place of a dental hygiene program of the extent and character of that conducted in Bridgeport in the health education work of the average school. It is a very real question just where the instruction in hygiene should be placed in the set-up of the curriculum. There is no doubt, however, in my mind that in the early and pioneer stages the dental hygienist as she was used in Bridgeport offered a very real opportunity to get over to the child a fine instruction, not only in dental hygiene but in general hygiene, and this was very well accomplished by the young women who constituted Dr. Fones's corps.

The cost of the dental hygiene program is one that has been frequently discussed.

There is no question that the appropriation in Bridgeport for dental hygiene, which was very largely expended for the first five grades of the public schools, was a high one when it is compared with the appropriation that is usually allotted for medical service in general in the schools. Nevertheless, in my own opinion, when we consider that Dr. Fones not only did the dental work but this very intensive piece of teaching, the appropriation was not excessive. Particularly this is true when we think of its being in the pioneer or experimental stages. It does become a question whether it is possible or wise to expend quite so much on the first five grades in the public schools for this intensive hygiene work, when we need to have appropriations for other activities in the schools. Nevertheless, I do believe that a properly conducted dental hygiene program, modeled or at least modified from the Bridgeport one, should be a part of every well-conducted modern school program."

The concluding paragraph of Dr. Brown's letter is of especial interest because Dr. Fones is here given, by a competent and disinterested authority, a character very different from that ascribed to him by some of his opponents, with whom we are soon to come into contact. Dr. Brown's final words are as follows:

This little memorandum would not be complete without my paying my very highest compliments to Alfred Fones as a man. While one might disagree with some of his conclusions along certain lines, I should like to record that, notwithstanding the fact that he received no compensation, the Division of Dental Hygiene, when it was under my direction in the Department of Health, was one of the best conducted of my divisions. Dr. Fones was always in touch with the whole work of the Department; his dental hygienists, his supervisors, and his dentists carried out their work with a regularity and certainty that was one of the finest pieces of administrative direction which I have ever had the pleasure of having, and I feel very keenly that it was not possible for it to be continued under the old conditions. I never had any difficulty administratively in dealing with Dr. Fones, but always found him reasonable and ready to receive suggestions and to work cooperatively with the rest of the Department. Further, I feel that he has made one of the largest contributions that have ever been made toward the proper understanding of dental hygiene and the relation of teeth to health.

Another Type of Health Officer Comes to Bridgeport

In 1919, William Hall Coon, M.D., who had been Health Officer in Kansas City, Mo., was hired to serve the remaining three years of Dr. Brown's term and was afterward appointed Health Officer for a term of four years.

Soon after Dr. Coon entered upon the discharge of his duties in Bridgeport, Dr. Fones received a letter from one of the most active workers for dental health in Kansas City saying that his experience with Dr. Coon had been very unhappy, and that he feared that Fones's experience would be similar. Before very long Dr. Fones came to feel that these fears were fully justified, and that Dr. Coon was determined to exercise domination in all health matters by a policy contrary to that of cooperation. A really big man, master of his task in so important a

position, as Dr. Brown had been, would of course have desired that his office should exercise its proper amount of influence and direction and receive all credit due it, but his very bigness would have led him to encourage or assist every worthy effort, knowing that there would be ample credit for all.

When Dr. Coon came to Bridgeport, he found the greatest demonstration of prophylactic dentistry that the world had even seen going forward in the schools. Quite a good many people were employed, the fame of the undertaking and its success had spread to the uttermost parts of the earth so that Bridgeport was more famous for that in many quarters than for its industries, and investigators came, saw, were conquered, and went home to tell an uplifting story. All this was under the Board of Health, but, horror of horrors, it was almost wholly dental in conception, origin and execution, and it shed only a faintly reflected lustre on the Health Officer. Brown had been too big to care; Coon apparently was not. The evidence seems to show that he early formed the determination to bring the active direction of this work under his own immediate control. The forces arrayed in its support were then too strong for him to begin operations immediately, so his resolution smouldered, flaming up here and there in certain tactics obstructive to things others desired to do but waiting for a favorable time to show its true face. Political events were shaping to make that possible.

(In the next article we begin to come into contact with the political forces by which the death-blow was dealt to the best educational features of Dr. Fones's work.)

The Story of the Toothbrush*

By Paul R. Stillman, D.D.S., F.A.C.D., F.A.A.P., New York, N. Y.
Clinical Professor of Periodontia, New York University, College of Dentistry

A Radio Talk

This is the last of the current series of talks on dental subjects to be given by the Dental Faculty of New York University. In planning these talks it has been our object to present topics which would be both interesting and valuable to you. You have heard something about "Why Teeth Decay"—and about means for the prevention of decay. You have learned what causes pyorrhea and something about its treatment. You have also learned what harm infected teeth do to the body and the part that dental disease plays in the community life. It will now be my privilege to tell you something about a means which has been provided by which you may control some of the evils which go with dental disease.

This means is, in a word, the *toothbrush.* I do not mean by this just any toothbrush, however. Nor do I mean just any way of using it. Dentists have recognized for years that the toothbrush was capable of doing harm in the mouth, and some even today go so far as to forbid their patients to use the toothbrush. Let me put to rest any doubts you may have on this point. The toothbrush, if of proper design and if properly used, is the best friend of our teeth and gums.

You can go into a drug store and buy toothbrushes of all shapes and sizes. There are still more toothbrushes of most freakish designs that have never found their way to the druggists' shelves. There are more varieties of toothbrushes than there are of dogs. Some brushes are so large that it is almost impossible to get them into the average human mouth; others are so small that he user never knows just where they are, or what they are doing. Toothbrushes that have very long rows of bristles and cover many teeth at a time are inefficient. They cannot be used to accomplish effectively the things for which a toothbrush should be used. The same may be said of brushes whose bristle tufts are of uneven length. The bristle tufts should be essentially of the same length from the toe to the heel of the brush.

Most people have the idea that the toothbrush is to be used primarily for cleaning the teeth. This is not the whole truth. The most important and the most valuable thing that we can do with the toothbrush is to stimulate the gums. Cleaning the teeth, while important, is a secondary function. What is desired of the toothbrush is that it shall provide health in a greater and greater degree. Health in general does not

* This paper was given over Station W O R, Newark, N. J.

reside in cleanliness alone. This is quite as true for the mouth as for the rest of the body. We must have cleanliness for health, but every student of health knows that bathing or cleansing processes will not develop health. Dentists frequently see mouths which are clean, and which nevertheless have disease. The thing that we need to know is how to have a healthy mouth, and in order to have this, we must know the real foundation of health in the mouth.

Physiologists tell us that the healthiest parts of the body are those in which use or function is at its maximum. Function stimulates the replacement of worn-out tissue cells. When these cells are rapidly and fully reproduced, we shall have the greatest degree of health. The muscles are a striking example of this, and not only does the athlete show the ideal reproduction of muscle tissue, but this process is carried by extension into all the other tissues of the body. These other tissues benefit because of the stimulation of the blood-stream. This circulation of the blood is the foundation of health.

The teeth and gums and jaws require a great amount of nutriment, in spite of the fact that the teeth themselves seem not to rebuild, as do the gums and other vascular structures. There are no muscles in the gums, and therefore the stimulation of the blood-stream must be accomplished in an indirect way. If we used our teeth as vigorously as the cave-dweller, for instance, we should not have to worry about stimulation of the blood supply to the parts. But the modern dietary and the modern methods of preparing it rob the teeth of much of the exercise which they ought to get. We, therefore, have to provide the equivalent of this exercise by artificial means, if we are to preserve our teeth.

You may have seen statements in the newspapers to the effect that the human race will in another hundred years or so be toothless. It is quite certain that if we were to proceed as we now are going, the day would come when teeth would actually disappear. But science has before this found a way to circumvent the misfortunes which our modern ways of living tend to produce. We have been told that in a short time we should be without coal for heat, gasoline for motors and even food for sustaining life itself. All these prophecies are being proved false through the discoveries of science. We are in no more danger of becoming a toothless race than we are of freezing to death in winter from a lack of coal. Each emergency can be met. As regards the teeth, we feel sure that we now have the means of preserving them.

It goes without saying that in the beginning health depends upon proper food-intake. This has been recognized by students of hygiene for a great many years. It is only in recent years, however, that we have begun to learn the influence which certain foods have on the development of the teeth. This department of dental science is being

developed very rapidly and the part which proper nourishment plays in mouth-health is well known. It is my privilege to tell you that food alone will not produce health in the mouth.

There is a belief on the part of the public which has been fostered by the dental profession that food remaining in the mouth after eating is harmful. In the first place, food is as natural to the mouth as air is to the lungs. The purpose of the mouth is the preparation of food for the stomach. But in the healthy normal mouth particles of food do not remain after the end of the meal. If food particles do remain between and around the teeth, it is an indication of an unhealthy condition, and disease will follow even if these food particles are artificially removed. The prime thought should be to get rid of the things which permit food remnants to stick to the teeth and not to be content with simply removing them.

In mouths where food sequestra are found, we find also spongy bleeding gums, a red line at the edge of the gums and pasty white deposits on the teeth near the gums. These things go together, and we are not going to get rid of the disease of the gums or decay of the teeth by methods directed solely toward the mere removal of these foreign deposits. On the other hand, if we attain health for the gums, we shall find a minimum of either sequestered food or other substance sticking to the teeth at any time.

All of this has to do with the circulation of blood, and we must now consider how we shall produce the highest degree of blood activity in the vessels which supply the teeth. This is accomplished most effectively by what we understand as massage. Most people think of massage as a friction process; they think that it consists of rubbing as, for instance, with the hands. On the contrary, massage is really a squeezing process, to which rubbing is sometimes incidental. Friction alone will always cause irritation, provided it is carried on frequently and to an extreme extent. But if the element of friction can be sufficiently minimized and the element of squeezing or pressure can be magnified, the effect is vastly different.

Squeezing or pressure, especially if intermittent, produces a drainage or emptying of the blood-vessels in the part. This provides most effectively for the intake of new blood. In fact, the only way in which a continuous and adequate supply of blood can reach a part is by providing an equally continuous and adequate drainage of blood from that part. If drainage is inadequate, congestion is apt to result, and debilitation is the product of congestion.

This philosophy as applied to the gums means that we desire to provide intermittent pressure with a minimum of friction. The average person using a toothbrush today does just the reverse of this, viz., he

uses a maximum of friction and a minimum of pressure. Please do not get the impression that the brush is to be pressed against the gums with all the force that can be exerted. Simply enough pressure is applied to cause a blanching of the gum immediately around the end of the toothbrush bristles. If the brush is placed upon the gum in a slanting position, a slight pressure will cause the bristles to move sidewise, and this will induce the desired expulsion of blood from the vessels.

All brushes have been designed to be used with friction, and when the first toothbrush was invented, it was intended to be used as a scrubbing brush. Its purpose was to make the teeth beautiful, but scrubbing is unnatural to the mouth. There is no natural act in the mouth which is strictly analogous to scrubbing. When the teeth are scrubbed, harm results, which finally affects the beauty which the scrubbing was intended to project. The teeth become worn and the gums recede, and these injuries are permanent.

It has, therefore, been necessary to recast our conception of the purpose of the toothbrush. This has required some modification in its design, as well as in its method of use. You have already been told that the brush should have bristle tufts of the same length from toe to heel. It is well also that the brush part should be only long enough to cover about three teeth. Brushes of greater length are unwieldy; they get in their own way. The bristles should be long enough to bend while pressure is being exerted. They should, however, be fairly stiff, to provide that springiness and pliability which is essential to the action upon the blood-vessels.

We have so far considered the principles of use, and, if I have conveyed this message to you, I have accomplished the most important part of my mission. The technic should be readily grasped if the principles are fully comprehended. I will now describe as briefly as possible the manner of using the toothbrush. Before using the brush, however, inspect the mouth in a mirror and note the coloration of the gums. That part of the gums which is next to the teeth should be a light pink in color, if they are healthy. That part of the gums which lies farther away from the teeth should show a bright red. If these colors are not seen, note their absence and begin to use the brush. Place the brush on the upper front teeth so that the bristles rest partly on the enamel and partly on the gum margin. The bristles are given an inclination of about 45 degrees to the gum and tooth surface, pointing toward the root ends of the teeth, upward on the upper teeth and downward on the lower teeth. Press the brush gently as if you were beginning to rotate the handle. Do not rotate it, however, nor make the bristles move from where you placed them. The pressure imparted will cause the bristles to bend and the gum will be seen to become slightly white, due to the emptying of the blood-vessels. Now, while maintaining the

pressure, move the handle of the brush very slightly back and forth. Again be sure that the bristle ends do not move from where they were placed. There must be no friction. As this movement under pressure is continued, the brush will gradually slide downward toward the cutting edge of the teeth. After it slides off the teeth, replace it in the original position and repeat the pressure and movement. This should be done five or six times in the same place, forcing the blood out and permitting new blood to refill the vessels. This process is repeated in regular succession over the entire mouth. The inner or tongue-side surfaces are to have the same attention as the outer surfaces.

The first color change which will be observed in the gums is a blushing or slight reddening. This is followed after two or three minutes by a noticeable change to a lighter pink. The final tint is usually perceptibly lighter than the color of the gums before the brush was used. This pink coloration is the color which the gums have when they are in the highest state of health. This stimulated pink color may be produced even before the gums are healthy, but soon fades to the first coloration. As the process is repeated from day to day, the light pink color of health is more lasting, and eventually it becomes a permanent part of the mouth picture.

The method of brushing which I have described to you is the one which we teach in the Pyorrhea Clinic of the New York University College of Dentistry. Its success there, as a part of the treatment of diseased mouths, has been a most striking confirmation of the essential soundness of the method. I have seen many cases reclaimed from a state of inflammation and disease to a condition of health, with beautiful pink, firm, translucent gums and white clean teeth. Such results are convincing.

52 Vanderbilt Avenue.

Oral Surgery In Practice

By James L. Zemsky, D.D.S., New York, N. Y.
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(*Continued from November*)

ALVEOLECTOMY

And Plastic Operations for Relief of Muscle Attachments

¶296. Cases which need extensive removal of the alveolar process require trimming down of the muco-periosteal flap covering it. This prevents formation of soft and flabby ridges, which interfere with proper fitting of dentures.

¶297. Perfect coaptation of the flaps at the alveolar crest following an alveolectomy is a disadvantage. Rather, a little space should be allowed to remain between the labial and palatal flaps, which space later fills in with granulation tissue, as a result of which a firm ridge is formed.

¶298. Surgical files can be used advantageously for smoothing down the sharp edges and projecting points of the bone without raising the muco-periosteal flaps. These instruments can be readily introduced between the bone and the periosteum without causing any trauma.

¶299. Some mouths have been hopelessly ruined by too extensive trimming of the alveolar process, a fact which should be borne in mind in performing this sort of operation.

¶300. Not infrequently a case most carefully operated upon for alveolectomy presents sharp, needlelike points which cause the patient considerable discomfort. There should be no hesitancy on the part of the operator to remove them as soon as they are discovered, even if it is somewhat embarrassing to him.

¶301. The maxillary sinus can accidentally be opened while the bone is being trimmed in the region of the maxillary molars. This usually occurs in those cases which present a low antrum. A careful examination of the roentgenograms is exceedingly helpful in these cases, for this may prevent such accidents.

¶302. Frenum labiorum not infrequently interferes with the construction of a properly fitting denture. Such a frenum should be removed by a thorough dissection, followed by suturing the cut surfaces together, which prevents further reattachment. (See Figs. 330-331.)

¶303. Low muscle attachments dislodge dentures. To prevent this, the Blum plastic operation is indicated. This consists of severing the attachment from the ridge and suturing the buccal part of it as deep in the muco-buccal fold as possible. (See Figs. 330, 332-333.)

¶304. Much more satisfactory restorations are possible when a

Fig. 330

Fig. 331

FRENUM LABIORUM

Figs. 330-331

Photographs showing two cases of abnormal frenum, which is seen to be attached to the very crest of the maxillary ridge. Structures like this seriously interfere with the retention of full dentures, and their successful restoration requires detachment of these muscles, which is a suturing procedure, consisting of cutting through the muscle band and suturing together the raw surfaces of the alveolar mucosa and then the mucous membrane of the lip. This is done to prevent the reunion of the alveolar mucosa with the mucous membrane of the lip. When the frenum is heavy and broad, as shown in Fig. 330, a V-shaped piece should be cut out and sutured as described above. This gives more satisfactory results than a mere incision. (See ¶302.)

Fig. 332

Photograph of a patient, 36 years old, presenting a low muscle attachment in the molar region. The denture that had been constructed proved unsatisfactory, due to poor retention. This case was operated upon according to the Blum technic with very satisfactory results, as shown in Fig. 333. (See ¶303.)

Fig. 333

Photograph of the same patient as in Fig. 332. This was taken a year after the plastic operation for removal of muscle attachment was performed. Note the even and prominent ridge which resulted. The scar is clearly seen above the ridge on the alveolar mucosa. (See ¶303.)

too prominent alveolar ridge is trimmed down (alveolectomy). (See Figs. 334-337.)

Fig. 334

Fig. 335

Figs. 334-335

ALVEOLECTOMY

Photographs of a patient, 43 years old, presenting a high lip line showing too much gum. All the anterior teeth were devitalized some time ago and subsequently became infected. This was revealed by roentgenograms showing incomplete root-canal fillings and extensive areas of rarefaction. These teeth were extracted, the pathological areas curetted and a considerable part of the alveolar bone resected, with the result as shown in Figs. 336-337. (See ¶304; also, ¶296-297.)

Fig. 336

Fig. 337

Figs. 336-337

Photographs of the same patient as in Figs. 334-335. These were taken after the alveolar resection had been performed and the dentures made. The appearance of the patient is considerably improved, due to the alveolectomy. (See ¶304; also, ¶296-297.)

Fig. 338

Photograph of a patient, 56 years old, presenting a marked inflammatory hyperplasia of the floor of the mouth, lip and cheek caused by wearing an ill-fitting denture. Cases such as this can be successfully operated upon. (See ¶305; also, Figs. 339-340.)

Fig. 339 (same as Fig. 230)

Photograph of a patient showing extensive proliferation of the mucous membrane of the cheek. This was operated upon, with the results shown in Fig. 340. (See ¶305.)

Fig. 340 (same as Fig. 231)

Photograph of the same patient as in Fig. 339. This was taken about two months after the operation for the removal of the hyperplastic tissue. The linear scar on the mucous membrane indicates the location of the former growth. (See ¶305.)

¶305. Inflammatory hyperplasia resulting from the wearing of an ill-fitting denture should be removed prior to the construction of a prosthetic restoration. After the connective tissue is carefully dissected out and the mucous membrane is sutured over it, the healed surface assumes a normal condition. (See Figs. 338-340.)

355 East 149th Street.

(*To be continued*)

[PLAN BEFORE YOU BUILD]

In a mutilated or otherwise wrecked denture, it is always unsafe to begin permanent restorations until a well considered plan has been adopted so that each restored element may be made to fit into that plan and to harmonize with all the other elements of the denture.

—GILLETT.

Porcelain Manipulation

A Practical Technic for the General Practitioner

By F. R. Felcher, D.D.S., Chicago, Ill.

XXI

The Porcelain Inlay (Continued)

Two methods are employed in making porcelain inlays. The older method is the direct method, which consists of burnishing platinum foil directly into the cavity of the tooth and producing a matrix into which the porcelain is fired. In this method greater difficulty is encountered not only in the construction of the matrix but in the control of the shrinkage of the porcelain, as it is extremely difficult to obtain a sufficient apron to resist the distorting effect on the matrix when the porcelain is vitrifying.

Porcelain inlays made by the direct method require, in most instances, ditching or relieving for shrinkage by cutting into the built-up porcelain before it is placed in the furnace. These ditched areas are subsequently filled and the construction carried on to completion. Most of these inlays require additional firings, which act detrimentally on the porcelains that have been applied and fired in the early stages. Direct-method inlays should be used where time is a factor and where cavities are small and have ease of accessibility, such as small labial or cervical cavities.

However, careful impressions of inlay cavities, together with carefully constructed dies and models, where models are indicated, seem to be used by most operators. The advantage of accessibility of dies, the advantage of the swager, which helps to adapt the matrix, and the ability to use a matrix with a longer apron produce inlays which do not require so many firings and are far better than direct inlays.

Inlays made in this way can be biscuit-fired and ground to the margins and, when finally fired, have the advantage of good marginal fit. Grinding inlays in the mouth requires greater care, as there is the danger of foreign particles gathering in the pores of the ground porcelain. Mixtures of saliva and carborundum are difficult to remove, especially if slightly dried.

Taking the Impression for the Indirect Inlay

For a cervical cavity a stick of modeling compound may be warmed at the tip and rolled into a point. It is then chilled and touched slightly with vaseline. Warm the extreme tip portion and press into the cavity. The cooler portion of the compound will help pack the material into the cavity. Chill and remove.

Another method may be described as follows:

A band of sufficient size is festooned to fit accurately over the labial portion of the tooth. It is then filled with modeling compound, and vaseline is applied over the compound. This is then warmed and the impression taken, chilled and removed.

Copper cups may be used as follows:

For cervical or labial cavities, secure a copper cup sufficient in size to cover the labial surface of the tooth completely. Cut this cup in halves, bending the floor portion out of the way. Next drill a few holes in that portion of the band which is to lie against the labial surface of the tooth. Fill the concave surface of the cup with some good modeling compound. Vaseline the surface of the compound and, after warming slightly, force it carefully over the surface of the tooth, allowing some of the excess to come through the drilled holes. Chill thoroughly before removing. After removing, examine carefully, making sure that an accurate impression has been obtained. Writing pens also can be used for matrices for the compound impression material. In incisal cavities or cavities involving the mesial or distal walls bands or cups are used, being cut away so as to be unhampered by contact points of adjoining teeth. The impressions are taken in the manner described. Where large involvements are present, such as cavities extending considerably toward the gingival, and where consideration must be made for contacts or occlusion, an impression of the surrounding teeth similar to the impression for the jacket crown and a good bite also may be required.

Where pins are to be used as aids in retaining incisal restorations, platinum pins of the proper gauge are placed in the holes drilled for them and are removed with the impression. Impressions of proximal cavities may be taken either with a matrix, which is passed between the teeth and against the labial or lingual surface of the tooth, dependent upon the insertion of the inlay, or by means of a modeling compound core. This is manipulated by making a matrix of modeling compound, which is moulded over the surface of the tooth and cavity, any excess which may extend into the cavity being trimmed so as to be in line with the tooth. This is chilled and slightly vaselined. Then an impression of the cavity is taken in modeling compound, which is prevented from spreading by the matrix previously made.

Die Construction

Dies are constructed by making wax tubes or copper bands, which are made to fit over the impression. These may sometimes be invested in plaster and the amalgam placed into them by tapping the amalgam to place, somewhat of a wet mix being used at first and drier mixes

being applied as the model is tapped on the bench. This method requires no pluggers nor presses and eliminates possibilities of distortion.

Where it is possible to adapt some sticky paper such as comes in rolls and is used by merchants to fasten packages, a strip of this paper about one-half inch long can be rolled around the impression and sealed. The amalgam can then be tapped into the impression without the necessity of investing in plaster. A sufficient resistance is obtained by the paper to withstand considerable pressure.

The dies should always be trimmed in the manner that will allow room for excessive apron material. Occasionally, in cervical inlays, a cylinder may be made of the die, and the matrix should be able to extend over part of the walls or at least 2 mm. beyond the cavity walls. Inlays of this type should be made in no more than three bakes, two biscuit bakes and one final firing bake, and because of the excess apron this is made possible.

Dies for pin inlays are made as follows:

Coat the pins with some material that will keep the mercury away from them (shellac or wax may be used). Then prepare the impression for packing. Pack and allow to set. Then separate and trim away the unnecessary material to facilitate the proper handling of the matrix. Alcohol will dissolve the shellac, or slight heat will warm the wax and remove the pins. Make the matrix and push the pins through the matrix so that they go into position. Now fill with sticky wax, remove the matrix and pins, and invest and solder the pins to the matrix with a very small amount of platinum solder. After the matrix is cleaned and prepared it is ready for the porcelain. The matrix is best made by the indirect method, that is, by taking an impression of the cavity in the die with modeling compound and by burnishing the matrix over this first. Then it is transferred to the die and swaged, after which it is ready for the porcelain application.

7616 Phillips Avenue.

Dental Condition of Children In Different Parts of the World

By Thaddeus P. Hyatt, D.D.S., F.A.C.D., New York, N. Y.

Professor of Preventive Dentistry, New York University Dental College; Director, Dental Division, Metropolitan Life Insurance Company

When we read in a dental journal that an examination of school children shows that there are from 30% to 40% who do not need any dental care and then find in some other magazine a report showing that from 90% to 96% of school children have dental defects, we become perplexed as to which report is to be accepted. We also wonder what the conditions and environments of the children are when 40% have no dental defects, while their more unfortunate schoolmates in another part of the world are found to be so susceptible to dental caries.

In talking with one of the examiners of children's teeth, who told me that they found a very large number who did not require any dental attention, I asked what the technic was that was followed in making these examinations. The doctor informed me that only a mouth mirror was used. It seems that the teeth had not been cleansed, the calcareous deposits had not been removed, and no fine-pointed explorers had been used to detect enamel defects and small carious cavities. I expressed my surprise that he would be willing to accept any data based on such a casual and incomplete examination. To accept the statement that 40% or even 30% of the children do not need dental attention after such an examination will defeat every effort for preventive work.

Inasmuch as the public, the medical profession and all welfare workers are greatly interested in the possibilities of preventive dentistry, and as it is essential, if we are to meet this problem successfully, that we make our deductions from *actual facts,* it seems advisable to adopt a standardized method for making and recording dental conditions as they actually exist.

By standardizing the procedure for detecting and locating carious cavities, enamel defects and fillings, using explorers of the same kind, shape and size and adopting the same form of chart for recording, the information thus obtained will be more reliable. Statistical data secured in this manner will enable us to understand better the problem which confronts us. It will then be simpler to formulate a plan of attack, and the results achieved will again enable us to measure the amount of success we are obtaining.

There is nothing that jeopardizes the success of our work and also calls into question the scientific attainments of dentistry as a profession more than to find such a diversity of opinion as now exists in the rank and file of the dental profession today.

No sacrifice of personal opinion is too great to be made so that a united and uniform standardized diagnostic procedure can be evolved and followed. I would therefore most earnestly suggest that all dental organizations, groups of dentists and individual dentists who are making dental examinations of school children, and who take pride in their profession and desire to establish preventive measures on a scientific basis, get together and adopt a definite procedure for diagnostic examinations. The minority should be willing to submerge their opinions and support and carry out the decision of the majority. If this is followed for three or four years, the mass of statistical data secured will be of inestimable value and will serve as a scientific basis on which to establish a logical procedure for the care of children's teeth.

To start such a movement as this would redound to the credit of any organization, and individual workers throughout the world will be glad to cooperate.

1 Madison Avenue.

[NEED OF COOPERATION]

Until all dental patients are educated in the personal home care of the mouth, and have an appreciation of oral health, and are interested in it to the extent of making every effort of which they are capable to establish and maintain it, our services will be incomplete and unworthy of the high calling of dentistry.

—SPALDING.

The Hygiene of Our Times

By Heloise Adler

On the slopes overlooking the Tappan Zee stands the realization of a man's and a woman's life desire, an ideal school. The parents of the pupils are, for the most part, of the rank and file of the middle class, but they represent men and women above the average. Cultured, high-minded Americans, they seek for their children the best of physical and mental development in an environment most natural and wholesome. For the development of the mind there are skilled instructors, the most modern of equipment and close contact with the great educators. To insure correct physical growth there is a school physician, there are required physical examinations, two physical instructors and the wide, health-giving acres of the Hudson Valley. Surely these children have the best of everything and an open road to a healthful citizenship.

Although vitally interested in children's welfare and eagerly grasping each new educational theory, these parents have not given an iota of thought to the gateway to their children's health, the mouth. They are only a few of the vast public ignorant of the appalling physical deterioration from which we in the United States are suffering. The adults fight approaching old age with golf; the children strive for health in physical exercise; both seem successful—yet these terrifying facts. So, after all, may there not be health-giving advantages to be gained from the dental hygienist and her mouth hygiene? Dentistry is fighting shoulder to shoulder with the other health agencies to regain that abundance of physical energy, a lost characteristic of our primitive ancestors. So to convince these people that they will adopt the measures of the hygienist for their children and themselves is the aim of this paper.

The turn of the century opened a new era in medical science. Previous to our times scientists were interested in curing man's ills, but with the dawn of the twentieth century medical science has turned its forces toward prevention. To cure is commendable, but when disease and pain have racked the body it recovers in a weakened condition, an easy prey to the next onslaught. Therefore, *prevention* has become the slogan and the "sound mind in the sound body" of the Greeks our motto.

A most vital branch of medicine is preventive dentistry, and in my mind as necessary to its success as oxygen is to man. The field of the dentist is the oral cavity, the gateway to the body, by which the air we breathe, the food we eat, bacteria, good and harmful, find their way into the system. The dentist, busy caring for the ills of the oral cavity, dental caries, malocclusion, periodontoclasia, has little time to teach preventive measures. Accordingly a dental associate whose time could

be spent exclusively in educating the public to the basic importance of this branch of dentistry was foreseen as a new profession for women. The qualities inherent in woman which enable her to gain the confidence of children, to understand instinctively social conditions and to meet them wisely, when backed by a thorough knowledge of general hygiene, have gone far to prove her the solution to the dentist's greatest problem, the eternal increase in dental diseases.

Even though an associate, the dental hygienist is primarily an educator, not a prophylactic technician. As such, her place is first of all in the schools. There, where generations have trained little minds and bodies for service, stands the natural entrance through which science has reached the public. In school the environment is conducive to the unconscious imbibing of knowledge. The child will learn how to brush his teeth scientifically, the number of times, the importance of quarterly prophylaxis and visits to the dentist, as well as the general care of the body. In the dentist's office the professional atmosphere and the starchy dignity of the hygienist is an environment alien to the realm of childhood. The child is aware of an incomprehensible strangeness, is conscious that he is learning new material. Thus both the child and the hygienist are distinctly handicapped.

It is also the aim of the oral hygienist to impress on the parents their part in that essential to the child's successful school career, home cooperation. Yes, many have been successful without it, but in spite of the fact, not because of it. True, parents, eagerly striving to be the ideal of their children, would not wilfully deprive them of this childhood pleasure which is as the bread of life to their success. As an integral member of the school, the hygienist can gain this cooperation through her relations with the Home and School Clubs. It is the home that lays the foundation on which the school builds. The parent lays the health foundation by teaching the child early in life good health habits, by entering him in school without physical handicaps, by visiting the school, and by knowing the teachers, doctors, hygienists, and the school's health program, and cements these elements in the house of life by making the school supplementary to the home in the care of the child's welfare.

The dental hygienist, with the oral cavity as her battlefield, is primarily interested in teeth and the furtherance of general hygiene through their scientific care. Only recently have we been conscious of the failures due to losses in efficiency, preventable illnesses, premature deaths and crime, to which dental diseases contribute. Prevention can be brought about by three main factors: (1) prevention of diseases to which the oral cavity is a prey by the formation of sound teeth; (2) correct diet to insure sound teeth; (3) the obtainment and maintenance of mouth hygiene as a vital step in prevention.

Athens is a medium-sized town in Georgia. The South has always been known as the backward portion of the country, Georgia not the least among the offenders, but in the field of preventive dentistry it has set an example worthy of this most modern city of New York. Athens' white schools have made the proud record of 100% dental corrections, so testifies the certificate from the Georgia State Dental Society. Because their public health plan "has teeth in it" and is exemplary of what can be done in the schools to make sound teeth and healthy citizens a legacy to posterity, I wish to incorporate it in this article. It gives a comprehensive and complete resumé of the work of the dental hygienist, the educator.

First, there is the expectant mother. She is visited by the nurses, urged to seek the services of a competent doctor and taught how to care for herself during the months before the baby is born, and what to eat and drink so that the baby will be sound in bone and tooth structure, thus insuring the healthiest and happiest of babies.

Second in consideration is the care of the pre-school child. On the foundation that the mother has so painstakingly built in the days before the baby's birth grows the child. With such an important task as molding the mind and body expert advice is needed to avoid the pitfalls of malnutrition, children's diseases and constitutional defects that threaten the lives of every one. Regular examinations and advice as to the baby's feeding are necessary if he is to grow sound in bone and teeth and enter school with a clean bill of health. Great care is to be taken of the deciduous teeth, for upon them rests the condition of the permanent teeth to follow. As soon as the first teeth appear they should be cleaned daily. By the time the child is a year and a half old he is ready to take his first step toward perfect health, the daily care of the mouth. In Athens, when there are teeth, the oral hygienist examines the child's mouth after the doctor has finished, advising the mother of tiny imperfections which she cannot detect and which should receive dental care. It is just as easy to create a desire for healthy, beautiful teeth and to show the necessity for the correction of defects as to instill the fear of the dentist. During early childhood is the time to plant the seed. Two years old is not too early.

When the child goes to school, he learns how to live to be healthy before he learns his three R's. He learns to brush his teeth five times a day, and the oral hygienist, on her yearly trip to the schools, will see that it is a good brushing and not a careless one. He learns to love his milk, fruits and vegetables, for he knows that they will build for him a healthy body. He eats the crusts of his bread and chews his food carefully and well, for he knows that his teeth and gums need exercise as well as he. The A-B-C of the plan for good teeth and consequently sound bodies is:

A. Good materials, milk, fruits, vegetables; hard foods maintain good general health.

B. Brush the teeth five times a day, before breakfast, after each meal and before retiring; do it in the correct way.

C. Regular repair; visit a dentist at least once a year, preferably twice, and follow his advice.

Follow the A-B-C's of general hygiene and insure the minimum of illness year in and year out.

Add to this program the immunization of every child susceptible to diphtheria and scarlet fever, and then prevention to produce unequaled health will be established. New York State may have no city that can boast 100% dental corrections, but by 1930 she hopes to have wiped out that scourge of childhood, diphtheria. An extensive State-wide campaign is now well under way; each city, town and village is doing its share to safeguard its children through toxin-antitoxin. Since New York is so aggressively active along this line of prevention, we hope she will soon take a place in the foremost ranks of preventive dentistry.

In those failures in individual development due in so many cases to dental diseases, often resulting in preventable insanity and crime, there is a strong relation between the sound mind and the sound body. Thanks to psychology and such of its teachers as Terman of Stanford University, this relationship between the sound mind and the sound body is being forcefully brought to the fore. Before the advent of these understanding people children who required more than the ordinary period of thirty-two school weeks to learn a prescribed amount of material and were left behind were plainly stupid. Nothing else was considered. Did they inquire whether or not the child had poor eyesight, defective teeth, sinus trouble? Was he malnourished? Not until several years of the new century had passed. Previously he was just dumb, incorrigible or lazy. But now we know that ill health has branded many a child a failure. Remove the defect, and unbelievable development proves the relation between mind and body.

Mr. Sutton, superintendent of Atlanta's school system, some months ago placed his city in the limelight when his 60,000 school children went over the top with 100% in oral hygiene. He explains the beginning of his interest in good teeth in an article in the *American Magazine,* November, 1927. It is illustrative of the point. A boy had made life so unendurable for his teachers that they finally notified Mr. Sutton that they would resign if he was not expelled. Under the circumstances the teachers had to be upheld. The boy was sent for. It was discovered that his mother was dead, and that he was the victim of unhappy home surroundings. His father whipped him cruelly. Expulsion was a dreadful punishment, and the child cried terribly. His lips drew back

from his gums, disclosing teeth dark and worn to the stumps. Mr. Sutton is a specialist in "boyology," so he wondered if the lad's condition was not to a certain extent responsible for his incorrigible behavior. The child was sent to a dentist and given a probation of six weeks.

Three months later Mr. Sutton asked: "What has become of the boy?"

The faculty reported: "Never saw such a change in a child. What did you do to him?"

"Had his teeth fixed," was the reply.

The faculty laughingly suggested that a dentist be added to their ranks.

It has been said that the dental hygienist is first and foremost an educator, not a prophylactic technician. With reference to this there seems to be a question as to whether or not a hygienist has a place in the dentist's office. I believe she has. In the first place, work with children does not hold the same desirableness for all oral hygienists. It is imperative that a person without such a desire should not be entrusted with the instruction of children. For the oral hygienist, like the teacher, comes into close intimacy with the child, and unless she has that elusive characteristic, let us call it the "divine fire" for her work, she cannot be a success from either her standpoint or that of the welfare of the child. Our schools are too full of women who, though they have no interest in their work and have developed into mere machines, are teachers because it is a respectable profession. Such a case is unfair to teacher and child. In the second place, the school cares for the youth only; the adult must go to the dentist. Busy man that he is, this work again falls to the hygienist. Here too she is an educator, for the adult, not having had the benefit of oral hygiene during his school days, is often entirely ignorant of hygienic measures in general and must be taught the value of oral hygiene in combating the oral diseases of age. Then, too, the child, grown to adulthood, continuing the health habits of his school days, seeks his semi-yearly prophylaxis and dental advice. Upon the young mother who comes to the dentist's office the hygienist in the office has an excellent opportunity to impress the importance of the school hygienist's work and plead for the hearty cooperation of parents, child and school. Thus there is need and room for the hygienist in the school and office.

As Mercury, with his insignia, the caduceus, was the winged messenger of the gods to their people, so is the dental hygienist the messenger of the dental profession to the people of the world, and her service is to promote in them happiness and efficiency through oral health, the hygiene of our times.

Edward Livingston Trudeau

By A. Schaeffer, Jr.

For the National Tuberculosis Association

His life was gentle, and the elements
So mix'd in him that Nature might stand up
And say to all the world, "This was a man!"
—Shakespeare.

A doctor, doomed by tuberculosis, hunting foxes in the Adirondack Mountains in 1875, noticed that the less he walked the better he felt. Today one of the greatest sanatoria in the world forms a monument to that observation. Edward Livingston Trudeau was the physician, and the Adirondack Cottage Sanatorium, world-famous center for treatment and research, is the monument.

Trudeau was born in New York, N. Y., on October 5, 1848. He was the descendant of many generations of French physicians and was thus well qualified by heredity for the discovery he was destined to make. His youth was spent with his grandparents in Paris, where he obtained his education in French schools. Returning to New York at eighteen, he was able to spend several years of leisure, during which he engaged in popular social activities and athletic sports. Then, deciding to settle upon some career, he secured an appointment to the Naval Academy, which was then at Newport.

He gave this up to become the devoted nurse of his brother, who had contracted tuberculosis. During the illness Trudeau often slept with his brother, and by order of the attending physician every window in the room was kept tightly closed. Of course he also contracted tuberculosis. It was not until he had married and established himself in medical practice several years later, however, that the fact was realized, although in the light of present knowledge he had had several warnings. The first resulted from a walking match from 59th Street to the Battery. Although he was an excellent athlete and sportsman, he was thoroughly exhausted from the match for several days and developed a "cold" abscess which had to be operated on several times. While in England during his honeymoon the second warning came in the form of a swelling of the lymphatic glands, but so little was the mechanism of tuberculosis infection known then that no alarm was felt.

Actual discovery came when a fellow physician declared he looked ill and insisted on taking his temperature. It was 101 degrees! Still unconcerned, and merely to forestall an argument, Trudeau went to a specialist for examination. He was told that the upper two-thirds of his left lung were involved.

In those days a diagnosis of tuberculosis was considered a death

sentence. Trudeau felt that he was merely beating time, but he did try in the South and in Minnesota to improve his health. His traveling was in vain, so he decided to spend his last days in his favorite hunting ground in the Adirondack Mountains. This region was then a wilderness braved only by ardent sportsmen, but he was determined to take a chance and remain there throughout the winter of 1874. So deep-rooted at that time was the belief that a consumptive should seek a warm, sunny climate and avoid cold and storm that only after considerable argument and persuasion could he induce Paul Smith and his wife to allow him and his family to spend the winter at their hunting lodge.

On his fox-hunting trips during that winter Trudeau made this observation regarding the value of rest in treating tuberculosis. "I found," he said, "that I could not walk enough to stand much chance for a shot without feeling sick and feverish the next day, and this was the first intimation I had as to the value of the rest cure. I walked very little after this, and my faith in the value of the rest cure became more and more fully established."

The idea of building the sanatorium originated in his reading, in 1882, an account of Brehmer's Sanatarium in Silesia. No information was available regarding the planning and building of sanatoria, but Dr. Trudeau "felt that aggregation should be avoided and segregation, such as could be secured by the cottage plan, would be preferable. By this plan an abundant supply of fresh air could be secured and the irritation of constant close contact with many strangers could be avoided."

His first patients at Saranac were two sisters, factory girls, and the first building was completed in February, 1885. It consisted of one room, 14 x 18, and a little porch so small that only one patient could sit out at a time. It has been known as *The Little Red* and is historical as the pioneer cottage in the development of sanatorium treatment in America. It is now kept as a relic and museum.

In the same year in which Trudeau read of Brehmer's Sanatarium Koch's epochal paper on *The Etiology of Tuberculosis* appeared. Trudeau determined to prove Koch's experiment for himself and plunged into experimental work with guinea-pigs. In order to carry out his laboratory work, he was forced to make his own apparatus, keep his guinea-pigs warm in a hole in the ground, and arise several times each night during cold snaps to stir up the fire and provide the correct temperature for his cultures. He succeeded despite the handicaps, and his laboratory (at first a makeshift place that was burned down and later rebuilt) was the first in this country to be devoted to the study of tuberculosis.

As his work became known he received the cooperation of the peers

of the medical profession. His sanatorium soon became an assured success, and his long single-handed fight in the dense woods of the Adirondacks against the tubercle bacillus was winning him high honors. One of the greatest of these was his unanimous election in 1904 as the first president of the newly organized National Tuberculosis Association.

During his life Dr. Trudeau was forced many times to take to his bed because his tuberculous lesion had become active, and several times his life was despaired of. Yet he lived until November 15, 1915, to the age of sixty-seven.

Before his death he had the satisfaction of seeing the benefits of his laborious research and experiments carried into every corner of the United States by bits of colored paper—the penny Christmas seals.

Since the time when Trudeau was the first president of the National Tuberculosis Association the Association has become the parent of 1,400 affiliated associations in all parts of the United States. Through its organized campaigns supported by funds raised in the annual Christmas Seal Sales it has been greatly responsible for reducing the death-rate from tuberculosis fifty per cent.

In a speech Trudeau delivered shortly before his death he said: "Over the doors of the hospitals for consumptives twenty-five years ago might well have been written these words: 'All hope abandon ye that enter here'; while today, in the light of new knowledge, we may justly place at the entrance of the modern sanatoriums the more hopeful inscription: 'Cure sometimes, relief often, comfort always.'"

Resolution of the Commission for Scientific Research of the Federation Dentaire Internationale Adopted by the Executive Council In Session at Cologne, 1928

Despite the fact that donations for the prize for dental research into the treatment of root canals have amounted to only $1,100, the Scientific Commission of the Fédèration Dentaire Internationale is of the opinion that the prize should be offered under the auspices of the F. D. I. and begs to propose the following conditions controlling its award to the Executive of the F. D. I.

International Dental Federation
Dental Research Prize

The F. D. I., in consideration of the importance of the problem of root-canal treatment and the necessity of obtaining a technic which will render pulpless teeth free from danger to the health of the individual, desires to promote laboratory and clinical research in this field by offering a prize. The prize will consist of a gold medal, together with the sum of one thousand dollars ($1,000), and will be awarded at the next International Congress in Paris in 1931. Candidates must notify the Secretary of the Scientific Commission of the F. D. I., Dr. J. Weinmann, Frankgasse 1, Vienna (IX), Austria, before July 1, 1929, of their intention to enter for the prize.

Each candidate must submit a description of his method in one of the Congress languages (English, French, German, Spanish), together with a record of ten treated cases to the same Secretary before July, 1930, through his own National Committee of the F. D. I., or that of a neighboring country. Of these ten cases, at least three must involve extraction of the living pulp (of which at least one must be a premolar and one a molar tooth), and at least three must be gangrenous pulps (of which again one is to be premolar and one a molar tooth).

The case records must be accompanied by all available evidence of the efficiency of the method, and the responsibility for furnishing this evidence lies with the candidate. Radiological evidence alone cannot be accepted. The Commission for Scientific Research of the F. D. I. considers the biological method to be the most efficient at present available. The candidate is, however, at liberty to control his technic by this or any other adequate method. The jury similarly reserves to itself the right to control any technic submitted by this biological method or by any other which they may consider adequate.

It is desirable that at least two of the ten treated teeth should remain in the mouth as long as possible after treatment is completed, in order to furnish clinical evidence in support of this biological control.

The jury consists of the President of the F. D. I., Prof. L. Aschoff, Freiburg, i.B., Germany; Prof. Laidlow, London; Dr. Percy R. Howe, Boston, Mass.; Dr. E. Rosenow, Rochester, Minn. The President of the F. D. I. may appoint a substitute in the event of a vacancy in this list.

The following histological laboratories are prepared to undertake the biological tests for those unable to do the work themselves, charging only the actual laboratory expenses of the investigations to the candidates:

Zahnärztliches Institut der Universität Breslau,
Burgfeld 17-19, Breslau.

Dental Department, Loyola University, 1747 Harrison St.,
Chicago, Ill., U. S. A.

The John Hampton Hale Research Laboratory of the
Royal Dental Hospital and School of Dental Surgery,
Leicester Square, London.

Histologisches Laboratorium des Zahnärztliches Institutes
der Wiener Universität, Wehringerstrass, 25A, Vienna (IX).

A subcommittee of the Commission for Scientific Research of the F. D. I. will be appointed at the meeting in 1929 to scrutinize the papers submitted, in order to see that the rules have been observed by the candidates.

The biological control of methods for root-canal treatment is as follows:

Use teeth which are destined for extraction. After doing the root-canal work, the teeth are extracted in a sterile manner. After giving an anesthetic, the pocket around the tooth is scarified by the actual cautery, whereupon the tooth and the surrounding tissue are painted with iodine. The tooth is then extracted; with sterile forceps and with a sterile splitting forceps the apical third of the root is cut off. During this last operation sterile cotton wool is kept around the beaks of the forceps and the tooth to prevent dropping the apex. The apex is then implanted into the leg muscles of a rat under strictly aseptic conditions; the best side is close to the femur. The wound is then closed by double suture (muscle and skin suture).

The weight of the rat is charted and the animal is well fed and kept under good hygienic conditions. During this time the rat should put on weight each week. After six months the rat is killed. The specimen is fixed in 5% formalin, imbedded in celloidin after decalcification and then cut. X-rays are used to determine the position of the apex in the tissues. Serial sections are prepared from the implanted apex, together with the surrounding muscles. It is important to get the axis of the root canal in the plane of the section. The series should be as complete as possible to be able to follow canal ramifications, if present. The degree of or absence of inflammation around the root apex in the tissues of the rat constitutes the required control.

Further details may be obtained from the histological laboratory of the Dental School of the University of Vienna, Turkenstrasse 15, Vienna (IX), Austria.

Hiram A. Fynn

1856-1928

Hiram A. Fynn was born on August 4, 1856, in Salisbury, N. Y., and died in Denver, Colo., August 1, 1928.

Dr. Fynn was graduated from the Philadelphia Dental College in 1885 and located immediately in Central City, Colo., where he practiced until 1891, when he came to Denver.

His college record is worthy of mention. First he was a teacher in the Denver Dental School. He was one of the organizers of the Dental Department of the University of Colorado in 1896. He was President of the Board of Trustees of the Colorado College of Dental Surgery for eighteen years and Dean for five years. During all of these years he occupied the chair of Professor of Regional Anatomy. He was President of the Colorado State Dental Association in 1895 and of the Denver Dental Association in 1899.

Dr. Fynn's beautiful life, his achievements and accomplishments were a stimulus, not only to those who were fortunate enough to attend his lectures, but to all colleagues who came in contact with him. He did much in molding professional thought and practice in the early dental history of Colorado; he was one whose judgment was highly respected, and whose counsel was always accorded a respectful hearing in our associations. His charming personality, his personal magnetism, his courage in defending what he considered right, his just and fair dealing and his splendid efforts to advance and place dentistry upon a higher plane are a few of the characteristics among many others which are responsible for the respect, admiration and honors bestowed upon him in this city and state.

Whereas, It has pleased Almighty God to call to his eternal home our friend and colleague, Dr. Hiram A. Fynn; and

Whereas, We were stimulated by his splendid example in discharging the duties and responsibilities incumbent upon him, also by his professional attainments and high ideals in conducting a practice; and

Whereas, The death of our colleague and fellow member at a time when his future seemed so bright for greater achievement and happiness is a great loss to this Association and community; therefore be it

Resolved, That, in remembrance of one who was so loyal, true and beloved, a copy of these resolutions be spread upon the minutes of this Association, a copy sent to the dental journals and to the family of the deceased.

A. C. Watson,
E. R. Warner,
W. T. Chambers,
} For The Denver Dental Association.

DIGESTS

FURTHER OBSERVATIONS OF TEETH INVOLVED IN CHRONIC INFECTIONS

By Frederick B. Moorehead, M.S., M.D., D.D.S.

Teeth are important structures and their removal should be based on the proof, not the assumption, of infection. A root-end granuloma is a regenerative, not a degenerative, condition—a failure to make a satisfactory repair because of reinfection through the root-canal, the presence of a foreign body, a roughened root-end, etc. A root cyst is developed by the presence of epithelial cells included in the formation of a simple granuloma. Liquefaction necrosis may be due to a peculiar property of the bacteria in the field. There is a constant liquefaction of the root-end and the surrounding bone, both of which are honeycombed.

Pyorrhea is fundamentally of circulatory origin, and the local conditions are only contributory. General hygiene, diet, exercise, and a detailed physical examination are paramount.

Successful treatment of the pulpless canal is so highly technical that only a few can be successful. A root-end granuloma or liquefaction necrosis may be cured by proper treatment and filling of the canal, but a cyst must be surgically removed.—*The Journal of the American Dental Association,* October, 1928.

MEDICO-DENTAL CASE RECORDS

Sixth Report

By Bissell B. Palmer Jr., D.D.S., F.A.C.D., and Malcolm W. Carr, D.D.S.

This report concerns a case of cancrum oris (noma) and is of special interest because this is considered as a disease of childhood and the patient was a male, 55 years of age. The first symptom demanding attention was a pericoronal infection of the right mandibular third molar. This tooth was extracted under nitrous oxid and oxygen and was immediately followed by a swelling of the sublingual and submaxillary glands.

On the seventh day pus was noticed around the right mandibular

first molar, and on the day following Vincent's organisms were found to be present. The patient then made a trip to another city, during which time he neglected his mouth, and on his return Vincent's infection was firmly established.

On the twenty-third day the patient was confined to bed and was very weak. Three days later a blood culture was found positive for streptococcus viridans. On the twenty-eighth day a well-marked ulcer developed opposite the right mandibular first bicuspid, which gradually deepened. A slough formed, which continued to extend, and all the right mandibular teeth were extracted.

On the thirty-seventh day the slough had extended onto the buccal mucosa, and the mandible was exposed in the bicuspid and molar regions. Everything possible was being done to combat the advance of the disease. Ten days later the slough had extended posteriorly to the second molar and anteriorly to the lateral. It had extended up into the cheek and had exposed the mandible below the mental foramen.

On the forty-ninth day a dark, circumscribed area appeared on the outside of the cheek and on the following day perforation was complete. The progress from then on was rapid and on the sixty-first day it broke through the corner of the mouth and attacked the edge of the upper lip. Blindness in the right eye occurred and pulmonary congestion set in. Swallowing was impossible and, since the patient was doomed, no feeding was attempted. On the sixty-eighth day the ala of the right nostril was destroyed and posteriorly the pillar of the fauces had been approached. The sight of the left eye was affected. Morphin was being given ad libitum and, though the patient was mentally alert, he was exceedingly weak. On the seventieth day there were several spasms of the glottis and the patient died.—*The Journal of Dental Research,* October, 1928.

ENAMEL LAMELLAE

By Charles F. Bödecker, D.D.S., F.A.C.D.

"1. Enamel lamellae are leaflike structures which extend from the dentin to the surface of the enamel and are composed of a continuous sheet of organic matter.

"2. In appearance, they are similar to cracks in the enamel. Decalcification in acid celloidin shows the difference.

"3. It would appear that the enamel lamellae offer a ready entrance in human teeth to the bacteria of dental caries. (Gottlieb.)

"4. The fact that enamel lamellae are present in even greater numbers in the teeth of animals which do not suffer from dental caries proves that either the specific bacteria, which, according to studies led

by Bunting, Howe, Jay, and others, appears to be Bacillus Acidophilus, are absent in the mouths of these animals or that there is still some undiscovered factor influencing this disease."—*The Journal of the American Dental Association,* October, 1928.

PULP CONSERVATION IN RESTORATIVE DENTISTRY

By De Forest Davis, D.D.S.

According to the author, every tooth not containing a healthy pulp may be a menace to the health, and preservation of the pulp is the most important problem confronting the dentist.

Thermal shock is a common cause of pulp irritation, although the easiest to avoid. The use of untrue stones is dangerous. Too tightly fitting inlays may cause the death of the pulp. Special care should be taken for the protection of the cavity with temporary fillings. Finally, no more dentin should be removed than is absolutely necessary and deep cavities should be carefully lined. In fact, the author recommends the lining of all cavities whether deep or shallow.—*The Dental Cosmos,* October, 1928.

DENTAL INFECTIONS AND HEART DISTURBANCES

By S. Calvin Smith, M.S., M.D.

"1. Heart irregularities will sometimes disappear when peridental infection is identified and surgically removed.

"2. The x-ray is of assistance in identifying peridental abscesses, but it cannot supplant thorough clinical examination and exhaustive tooth vitality tests at the hands of a modern dentist.

"3. A dentoradiogram that fails to show rarefactions should not lead the physician to absolve the teeth from blame when tracing the cause of heart abnormality. Clinical dental examination is always necessary.

"4. Should a dentoradiogram present suspicious rarefactions, the accused teeth should be subjected to a clinical dental examination.

"5. A peridental abscess which is determined to be present by x-ray and by clinical studies admits of no compromise. That abscess should be surgically removed, even though the removal of the abscess means the removal of the tooth.

"6. A study of the heart is incomplete without radiographic and clinical studies of the teeth."—*The Dental Cosmos,* October, 1928.

PRACTICAL HINTS

This Department is now being conducted from the office of The Dental Digest. To avoid unnecessary delay, Hints, Questions and Answers should be addressed to Editor Practical Hints, The Dental Digest, 220 West 42d Street, New York, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

SENSITIVE TEETH.—In going over the answers to some of the questions in your *Practical Hints* I have noticed that somebody sidestepped the treatment of sensitive teeth. May I suggest the treatment advocated in 1924 by me?

This is the administration of five grains of calcium lactate TID, plus a generous daily intake of Vitamin A (such as raw greens), and, wherever tried, this has uniformly been successful after several weeks.

Of course, mechanical abrasions must be eliminated.

S. W. A. FRANKEN.

Editor, Practical Hints:

Two months ago I removed an impacted lower third molar. The patient had considerable post-operative pain accompanied by swelling. The swelling and pain disappeared after treatment for several days. The socket has not completely healed, there being a slight opening at the top through which the patient gets some pus, which is especially noticeable in the morning. There has been some swelling for the past week, which does not seem to disappear with hot applications and treatment of the socket. There is a rather hard lump in the region of the first molar, and the submaxillary gland is somewhat swollen.

I am enclosing an x-ray picture, which is not very clear but which shows some involvement of bone in the third molar region. It shows also a slight destruction of the pericementum at the apices of the second molar roots. This, I think, does not have any bearing on the case.

I shall be glad if you can tell me the cause of this condition occurring after the region operated on has caused the patient no trouble for a period of two months.

J. N. G.

ANSWER.—It would seem that there was some infection still present, possibly a necrosis of the bone. It would be best to proceed carefully. If the wound is opened up and curetted and there is a beginning of an osteomyelitis, the operation may serve to spread the infection, with serious results.

Editor, Practical Hints:

Will you kindly answer the following questions:

(1) Is it absolutely essential to obtain frictional contact in seating gold inlays?

(2) Does lack of same affect the inlays in any way?

(3) How is frictional contact procured?

(4) What is the cause of nodules on the cavity surface of gold inlays?

R. A.

ANSWER.—It is by no means essential to obtain frictional contact over the whole area of the cavity. In fact, some men prefer not to, claiming that there is danger in splitting a tooth while setting the inlay. Contact should, of course, be secured at all the margins. For frictional contact great care must be used in making the model and pattern, and some men use a slightly expanding wax. The practice of making inlays so that they can be seated only by using a mallet is to be condemned.

Nodules on inlays are caused by a coarse or improperly mixed investment, by improper burning out of the wax pattern, or by not casting the gold in a correct manner.

Editor, Practical Hints:

Some time ago I read in *Practical Hints* of some acid that would dissolve the cement from porcelain crowns to permit the removal of pins. Can you give me the name of this acid?

K. M. K.

ANSWER.—If the crown is placed in hydrochloric acid for a few hours, the cement will be dissolved.

Editor, Practical Hints:

I have a patient, female, aged 20, married, with no children, who is troubled with excessive hemorrhages. After extracting there is excessive bleeding, and a blood clot must be taken to see when an extraction can be made with the least danger. I have been working with a physician, and we get the blood to clot in four or five minutes. At this

time one or two extractions are made. When the patient has recovered from the shock, which is a little more than normal, menstruation is about ready to start and the flow is excessive and long, but not painful. During menses all of our former efforts seem to be lost and it takes days to get the clotting time short enough to do another extraction with safety. Can you help us, please?

A. J. M.

ANSWER.—In regard to the prevention of hemorrhage Mead says that 15 gr. doses of calcium lactate should be given four times a day for five days, and that the patient should eat gelatine and improve the general health by tonics, sunshine, exercise, etc. Adrenalin chloride solution (1:1000) may be used hypodermically.

Editor, Practical Hints:

Kindly advise me how to work through stubborn root canals in a molar. I have used 50% sulphuric acid without much success.

H. M.

ANSWER.—The first thing to do when you encounter difficult canals is to take x-ray pictures. Pulp stones may be present and in certain cases you will find the canals completely obliterated by secondary dentin.

The use of 50% sulphuric acid together with picks and files and a great deal of care and patience will generally open up the most difficult canals.

Editor, Practical Hints:

Information on the following case would be appreciated:

Patient, female, aged 40. One year ago I extracted the inferior right first molar because of an infected area around the mesial root. The socket was curetted. I think the enclosed film shows that I cleaned up the infection thoroughly.

About one month after the extraction the patient began to have intermittent pains in the right temporomandibular joint. The pain goes away for ten days or two weeks, then returns. Could the second lower molar be causing this trouble? Is there any help at all for such a condition?

H. R. S.

ANSWER.—There does not seem to be anything in the x-ray that would lead one to believe that there is anything wrong in this area. Nevertheless the pains in the temporomandibular joint would seem to indicate that there is an active infection present. This may have its focus in some tooth in the upper jaw, the tonsils or the sinuses. In

fact, it may be almost anywhere in the body and may be difficult to find. It is assumed that you had no trouble in extracting the first molar, and that no undue strain was put on the joint.

Editor, Practical Hints:

Recently I installed a new x-ray machine.

(a) Kindly advise if it is necessary to have a lead shield for the operator when taking a picture.

(b) Does it injure operator's eyes?

(c) Is there any real danger to any part of the operator's body if he works without the lead shield?

I take on an average of five pictures a day and stand about eight feet away from the machine. V. B. W.

ANSWER.—The protection afforded by a lead shield cannot be too strongly urged in the operation of an x-ray. Carcinoma is too serious a thing to take any chances with. A very good test to make is to carry an x-ray film in your pocket and at the end of a week develop it. This will very clearly show whether or not you are absorbing any of the rays.

Editor, Practical Hints:

I filled the teeth of a patient, female, aged 44, in December, 1926. She now complains of stiffness in the temporomandibular joint and pain in the entire side of the face and head. She says it began just after her work was completed in 1926. The first bicuspid on the same side feels peculiar but not sore. I removed the filling and found it vital. She has no non-vital teeth on this side. Can you suggest a cause and a remedy? Pictures are enclosed.

I am sending also a picture of a lower first molar of another patient. The tooth looks perfectly good and no pathology shows in the mouth. All history is negative. The picture shows something at the root-end. What is it? Would you advise the extraction of this tooth from the picture above? W. C. W.

ANSWER.—The symptoms in the first case would seem to indicate that there was a focus of infection somewhere. It might be in the upper or lower jaw or in a sinus or even at some more remote part of the body. It has been proved that very often a pulp which seems alive and responds to vitality tests may in fact be partly putrescent, and this condition may be more dangerous than one that is wholly dead.

In the second case, if there are no symptoms, it would be advisable to leave things as they are. Any operative interference based on x-ray findings alone is very apt to be wrong. The x-ray is misleading in many instances.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42nd Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

I have noticed in the accounts of the meetings of some of the societies for dental assistants that classes in first aid were held for the members. Of just what do these classes consist and of what benefit are they to the assistant or the dentist in the work of a dental office? I do not wish you to infer that I do not know what first aid is, but I should like to know more specifically, if possible, of what advantage to me an assistant would be who had taken one of these courses.

H. M., D.D.S., Va.

ANSWER.—To answer the first part of your query, "Of what do these classes consist?" we are informed that they consist of the regular first aid course as given under the supervision of the Red Cross, the instruction being under the direction of one of their associated physician teachers, a woman physician if obtainable. Briefly, the course teaches first aid care of injuries such as fractures, dislocations, sprains, bruises, wounds of all types, bleeding (arterial and venal), burns and scalds, exhaustion, sunstroke, suffocation and artificial respiration, electric shock, various types of gas poisoning, medicinal poisoning, hysteria, fainting, shock, cramp, nausea and vomiting, hiccoughs, chills, etc.; also, the making and proper application of bandages, dressings, etc.; the care of numerous common emergencies arising indoors and outdoors,

and the proper manner of carrying and preparing the injured while awaiting medical aid; also, the preparation of an emergency kit or box that can be adapted to the needs of home or office.

First aid has been the means of relieving much suffering and saving many lives. It can be translated into *What to Do in an Emergency.* The practice of dentistry is unfortunately not emergency-proof. Every now and then we hear of some accident or occurrence that is very disturbing if not actually disastrous. The old adage, "An ounce of prevention is worth a pound of cure," never was truer than in its application to first aid treatment.

And now, how does it apply more specifically to a dental office, and of what advantage would a dental assistant be to you if she had taken one of these courses in first aid? First, may I say that any teaching or acquired knowledge along lines that call for the student's self-reliance, poise and clear and quick thinking is of unquestionable value in the service that must be rendered to patients in a dental practice. Anything that will build up the confidence and ability of the dental assistant is of value. We hope that you never have any accident or emergency that will call for all your resourcefulness and that of your assistant in a manner needing perfect teamwork, but should anything occur we are sure that you would prefer having some one by your side who is capable of seconding your every effort to calm and relieve your patient instead of some one perfectly useless or perhaps adding to your burdens by being hysterical or going into a faint.

Patients are frequently hysterical or faint or suffer from exhaustion or shock. They are also prone to nausea, vomiting and hiccoughs. Sharp instruments, burs, disks, etc., have been known to gash the tongue, lips or cheeks of patients who either suddenly jerk their heads or throw up their hands, striking the operator's hand or arm; serious wounds have resulted with severe bleeding, sometimes hemorrhagic in character; pieces of metal or other matter have even been buried in the wound. In extracting teeth there are patients who have serious bleeding and hemorrhages. It has also been recorded that serious burns have resulted from the accidental spilling of acids or from electric contacts, gas flames, steam, boiling water, hot waxes, etc. Bruises, sprains, dislocations and even fractures have occurred. Patients often come into the office with particles of foreign matter lodged in their eyes. It is within the range of possibility that one might be overcome by illuminating gas, carbon monoxide, charcoal furnace fumes, etc., in a close, ill-ventilated laboratory. If located in a private home the office could become permeated from coal-heating furnace fumes, and even in our modern apartment buildings ammonia tanks or pipes used for refrigeration purposes have been known to break with serious consequences to those inhaling the fumes.

Space does not permit my further elaboration of the many types of injuries and emergencies that might occur in a dental office. Dentists, patients and assistants are human and subject to the frailties of human activities, no matter how careful or well intentioned. To have a well prepared emergency box on hand at all times, containing such remedies, bandages, dressings and instruments as might be needed, is indeed a valuable thing.

First aid does not pretend to take the place of the services of a physician, and one should always be summoned as a precautionary measure when the case seems to be more than superficial. First aid is only intended to train people to administer relief as promptly and as intelligently as possible. Any one thus trained becomes a more helpful member of society, and any dental assistant thus trained is certainly better qualified to serve the dentist and his patients. The duties of a dental assistant have to do with health service just as truly as those of the medical man's assistant, whom we qualify as the trained nurse. Ask your medical friends if the training of women to understand how to aid them properly in their service is not of value.

Dear Miss Pierce:

I should very much appreciate your telling me what to do to keep the engine cord clean. After it has been on a few days it gets so greasy and dirty that I am ashamed of it. I have tried washing it off with soap and warm water, but it seems to make it worse.

I want to tell you how much I enjoy the *Questionnaire*. It has helped me more than I can tell you, and if the dentist I work for did not take THE DENTAL DIGEST, I should subscribe to it myself. This department alone is worth many times the subscription price.

L. S., Pa.

ANSWER.—A clean cloth moistened in gasoline, used several times a week, will keep the engine cord fresh and clean. Be sure that the gas flame at the doctor's bracket is not lighted when you use the gasoline, or that the alcohol lamp is not burning near by.

We appreciate your words of commendation. The *Questionnaire* is intended to help the assistants and the dentists.

Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.

The Educational and Efficiency Society for Dental Assistants, First

District, New York, held its second meeting of the season on Tuesday, November 13, 1928.

A discourse on *The Value of the Dental Assistant As a Secretary to the Dentist* by W. B. Cauldwell was extremely appreciated.

A paper on *Health and Happiness* was read by Amelia J. Bulleid.

At the Better Dentistry Meeting of the First District Dental Society, New York, on December 3-6, 1928, evening clinics will be given as to the various methods of tooth-brushing, making of swabs and laboratory technic. The assistants will also take part with the dentists in the scientific exhibit of the dental assistant's daily routine in an ethical office.

The Clinic Club meets on the third Monday of every month. The classes formed for the winter are now active, and progress in the work is assured to all who have enrolled. Vacancies in some of the classes are few, but those desirous of further improvement should apply to the Acting Director, Agnes F. MacNeil, 579 61st Street, Brooklyn, N. Y.

The Society meets regularly on the second Tuesday of each month, October to May, inclusive, at the Academy of Medicine, 2 East 103rd Street, New York. Miss Ethel Myerson, 27 West 86th Street, New York, will be glad to send application blanks to those employed in ethical offices who care to become members.

The Montreal Dental Assistants Association

The Montreal Dental Assistants Association held its opening meeting of the season at the McGill University Dental Faculty on October 22, 1928, with Miss E. Moye, Acting President, in the chair.

Miss Moye gave a brief outline of the activities of the society and urged each member to endeavor to procure another member and thereby enlarge the membership of the Association. She also expressed her appreciation to all those who had helped to make the organization a success, particularly Miss Rachel Ratner, the founder and organizer of the Association. Miss Ratner was presented with a bouquet of flowers in acknowledgment of her services.

Miss Anna Tritt gave a very interesting recitation.

Dr. Arthur L. Walsh, Dean of the McGill University Dental Faculty, and Dr. F. H. A. Baxter, Professor of McGill University Dental Faculty, both delivered short addresses urging the Association to continue the work which was started two years ago.

The meeting was well attended and a large number of representative dentists of the city were present as guests.

A very interesting and instructive lecture and demonstration on filling materials, including cements, silicates and alloys, was given on October 23rd by a manufacturer's representative.

The Dental Nurse—The Dentist's Assistant of the Future

By Carleton Cleveland, D.D.S., Highland Park, Ill.

Fast passing from the busy dentist's office of today is the old-time "office girl"—she who would sit in a comfortable chair in the reception room doing fancy work for some girl friend's hope-chest. Many of us can remember how this young miss used to sit there complacently rocking to and fro, occasionally incommoding herself sufficiently to answer the telephone or to put away a soiled towel as some patient left the chair.

Time and progress are doing away with this office girl of yesteryear and the trained dental assistant is found taking her place. This trained dental nurse (as she is sometimes referred to) is more than a mere office girl who just takes a message or goes on an errand to the drug store or the dental supply house. Yes, she is vastly more! She is really the dentist's trained assistant at the chair, capable of rendering intelligent service in whatever emergency is likely to arise in the office.

The fact that the office girl of former years was nothing more than a mere office girl was due to the fact that the busy dentist could not give the necessary time to the thorough training of a young woman in the details of his work, a comprehensive knowledge of which is necessary in order that she may grasp the situation and be of any valuable assistance to him. An assistant can no more be expected to render efficient help without a fundamental knowledge of the work involved than could the medical or surgical nurse be expected to perform her duties understandingly without first going through a rigorous course of training in hospital and operating-room routine. It requires time, patience and an ability to convey ideas to another in order to turn raw human material into a skilled helper.

This does not mean that it is impossible for a dentist to train a person so that after many months she may be able to help him materially in his work. There are a number of cases where an adaptable young woman has been trained by her employer and has become a very capable and efficient assistant. But why should a dentist be called upon to train an assistant in all the minute details of the work she is to do any more than the business executive should train a stenographer or secretary in all the technicalities of the work she is called upon to do?

As a matter of fact, the training of young women for the vocation of dental assistantship has more recently been recognized as requiring special attention, and once her vocation is recognized as a distinct dignified calling, the dental assistant will hold the same relation to the dental profession as the trained nurse now holds to the medical profession.

Just what should a young woman know before making application as a dental assistant? It goes without saying that she must know considerably more than merely how to answer telephone calls, or how to meet and greet those who come into the office, and how to keep the simple records of the dental office. To be of the utmost help to her employer she must be able to take her place and work with him at the chair and work with him so thoroughly hand in hand as to prove to be the extra pair of hands which he really needs, and she must be able to relieve him of the many time-consuming and nerve-wracking details of his work. In order to be thus helpful and to anticipate his needs, she would have to be able to distinguish one instrument from the other, know the name of each and its use. She would have to be able to help in the administration of anesthetics. To help in such a capacity she would want to have a working knowledge of anatomy and physiology—particularly of the circulatory, respiratory and nervous systems—so that when emergencies arise she may quickly recognize danger signals, call them to the attention of her employer and be able to cooperate with him restoring the patient to a normal condition. Without proper instruction she could be of absolutely no help at such times and would be only in the way.

In the laboratory, too, the dental assistant can prove herself of great value in saving time for the busy dentist. But unless she has an appreciation of the importance of this work and a knowledge of how to go about it, she only adds to the dentist's work, consumes his time and vexes his spirit.

It need hardly be added that she will find the individual cases far more interesting, and that she will at the same time be adding to the value of her services, if she knows something about the diseases of the mouth and teeth and about infection, fractures, dislocations, and deformities of the mouth and teeth.

In short, the instruction of the dental assistant should really give a comprehensive survey of the dental education of the dentist. As mentioned above, no assistant can render intelligent service unless she has an appreciation and some knowledge of the work involved. The more she knows as to what constitutes her employer's work, the better she is fitted to work with him as his assistant.

708 West Park Avenue.

Books Received

A BOOK MAY BE AS GREAT A THING AS A BATTLE—DISRAELI

Dental Medicine, by F. W. Broderick, M.R.C.S., L.R.C.P., L.D.S. (Eng.), Hon. Dental Surgeon to the National Sanatorium for Diseases of the Chest, Bournemouth.

This is a unique and interesting book, which looks at dentistry from a new viewpoint and provides much food for thought. While some of the conclusions are perhaps open to discussion, yet it is a book that can be read with a great deal of profit.

Acidosis, alkalosis and calcium metabolism are the main factors in determining the condition of the mouth, and a great deal of attention is given to the acid content of the saliva. Two chapters are devoted to endocrinology.

The second part of the book is given over to the relation of dental to general medicine, under the headings of *Civilization as a Factor in the Problem* and *Dental Sepsis as a Factor in the Aetiology of Disease.*

The so-called practical man will find little of interest in this book, but for the man who recognizes the signs of the times there will be much for consideration.

364 pp., with index. St. Louis: The C. V. Mosby Company, 1928. —A. M. J.

Diseases of the Mouth, by Sterling V. Mead, D.D.S., Professor of Oral Surgery and Diseases of the Mouth, Georgetown Dental School; Professor of Diseases of the Mouth, Georgetown Medical School; Oral Surgeon to Georgetown Hospital; Dental Surgeon to Providence Hospital; Oral Surgeon to Gallinger Municipal Hospital; Consulting Dental Surgeon to Washington Sanitarium and Hospital; Consulting Dental and Oral Surgeon to Shady Rest Sanatorium, Washington, D. C.

The first edition of this book was reviewed only recently in these pages, and the fact that the third edition has been sent to us is only a further proof of the value and popularity of this work. The new edition has enabled the author to revise parts of the text and add certain illustrations. It is the best book of the kind that we know.

707 pp., with 336 illustrations, 43 color plates and index. St. Louis: The C. V. Mosby Company, 1928.—A. M. J.

The Technic of Oral Radiography, by Clarence O. Simpson, M.D., D.D.S., F.A.C.D., Professor of Radiodontia, Washington University School of Dentistry, St. Louis, Mo.

This is the second edition of a book whose author is a recognized authority on the subject. From an examination of many radiograms taken in various parts of the country it can only be concluded that this branch of dentistry has been sadly neglected, for the results are far from satisfactory.

In this book the whole procedure is clearly and concisely described, and it will repay any man who owns an x-ray machine to read it carefully.

203 pp., with 165 illustrations and index. St. Louis: The C. V. Mosby Company, 1928.—A. M. J.

A Textbook of Physiology, by William D. Zoethout, Ph.D., Professor of Physiology, Chicago College of Dental Surgery (Loyola University) and Chicago Normal School of Physical Education.

This is a complete though somewhat abridged treatise on a subject which is a basic one in the study and practice of the healing art. As is customary, the teeth are given very little consideration, while a comparatively large amount of space is given to the saliva and the digestive processes. Seemingly the preparation of the food by the teeth is of little consequence.

The chapters on diet and metabolism are well worth reading, and the book can be unreservedly recommended.

651 pp., with 193 illustrations and index. St. Louis: The C. V. Mosby Company, 1928.—A. M. J.

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

Eat, drink and be wary.

The Scotch aren't such a bad people after all. It has just been discovered that it was the Romans that invented bagpipes.

(He)—I'm something of a mind reader. I can tell at a glance just what a person is thinking of me.

(She)—Oh, I didn't know that. I hope I haven't hurt your feelings.

As women's dresses grew shorter accidents decreased, says a prominent doctor. Maybe some day soon we won't have any more mishaps at all.

(Son)—Who was Bacchus, pa?

(Pa)—Bacchus, my son, was the God of wine.

(Son)—What is he the God of now?

A man from Aberdeen was playing golf on a strange course. When asked what he thought of the course he said: "Weel, it is a bit rough and I lost four ba's but it's no sae bad—I found six."

(Doctor)—A few lettuce leaves, without oil, and a glass of orange juice—that, madam, will be your daily diet.

(Fat Lady)—Thank you so much, Doctor, but do I take this before or after meals?

(Teacher)—If a farmer has 14,000 pecks of potatoes, and he sells them for 20 cents a peck, what will he get?

(Small Boy)—A set of golf clubs, a radio, and a Ford car.

(Rube)—What do you think about this here evolution?

(Yokel)—It's a good idea, but can they enforce it?

ON THE GRAVESTONE OF A DENTIST

Here lies the body of Dentist De Mille,
In the largest cavity he'll ever fill.

Logic is just a slow masculine process of arriving at truths known to females by the time they learn to talk.

A COMMUTER'S WISECRACK

Q. Why is the 12:50 train hardest to catch?

A. It is ten to one if you catch it.

And now we hear that visitors to New York refer to our little old Broadway, with its million lights, etc., as the "hardened artery."

(Teacher)—Give me an historical example of inappropriate action.

(Pupil)—When Rome was burning Nero played the fiddle when he should have been playing the hose.

(Wifey)—Do you like moving pictures?

(Hubby)—Sure I do.

(Wifey)—That's great. I want you to bring a lot of them down from the attic.

A wise Chinaman urged his countrymen to discriminate between the false and genuine in drugs. He made use of the following impressive proverb: "Sellers of drugs have two eyes. Prescribers of drugs have one eye. Takers of drugs have no eyes."

The long standing controversy concerning Shakespeare and Bacon can at last be solved. A dramatic critic of a small town figures it out this way: Let the same players who performed Hamlet here last week give a return engagement, following which both graves should be opened. The one who turned over is the author!

HOW TIMES CHANGE

(Host)—Shall we join the ladies?

(Guest)—Not just yet. My lungs are a trifle weak. I can't stand smoke.

A Eureka man's time is so valuable he is about to move his home closer to the golf course.

SOMETHING TO FILL IN YOUR SPARE TIME

Do you know the number of molecules in a cubic inch of gas? Possibly you would like to count them. For easy handling let each molecule be enlarged to the size of a golf ball. Then start 6,000 people counting them, each person lifting out one every second continuously for 24 hours each day, and 365 days a year. Three hundred million years will pass before the job of counting the molecules in this cubic inch of gas can be completed.

FUTURE EVENTS

The December Meeting for Better Dentistry of THE FIRST DISTRICT DENTAL SOCIETY OF NEW YORK will be held again this year at the Hotel Pennsylvania, New York, on December 3, 4, 5, 6, 1928, this being the fourth of these meetings.

The same plan of subscription will prevail this year, one fee admitting a subscriber to all lectures, clinics, etc.

The clinic atendance at these meetings is limited, and subscriptions are registered in advance, giving the audience opportunities to avail themselves of all material the clinicians have to offer.

Among the lecturers and clinicians who have accepted invitations are: Doctors A. D. Black, C. N. Johnson, H. B. Pinney, Chicago, Ill.; Sherman L. Davis, Bloomington, Ind.; Robert R. Gillis, Hammond, Ind.; Edward H. Jackson, P. C. Lowery, Detroit, Mich.; Carlos H. Schott, Cincinnati, Ohio; Edouard M. Hall, Kansas City, Mo.; Robert H. Ivy, Emerson R. Sausser, Philadelphia, Pa.; Percy R. Howe, Benjamin Tischler, Boston, Mass.; Raymond A. Albray, L. Thomas Asche, Newark, N. J.; and the Logan Clinic Club of eight members, Portage, Pa.

An Oral Hygiene Luncheon will be held on Wednesday noon, at which time Dr. Percy R. Howe, President of the American Dental Association, will speak, as well as Dr. Harry Pinney, the Secretary. Other speakers will be Drs. John B. Watson and William Welch of Johns Hopkins.

Topic Discussions will be held on Thursday afternoon, and the General Clinics on Thursday evening.

The Manufacturers' Club of the American Dental Trade Association and the Independent Dental Manufacturers Association will hold exhibits of the most recent appliances and materials in the Hotel during this meeting.

Address all communications relative to subscriptions to Edith M. Davies, Executive Secretary, 2 East 103rd Street, New York, N. Y.

JOHN T. HANK, *Chairman.*

THE IOWA STATE BOARD OF DENTAL EXAMINERS will meet at the State University of Iowa College of Dentistry, Iowa City, Iowa, December 10-13, 1928, at 9:00 A. M., for the purpose of examining applicants for license to practise dentistry in Iowa. An examination for dental hygienists also will be given.

For further information and application blanks, address the State Department of Health, Capitol Building, Des Moines, Iowa.

All papers and credentials must be filed with the Department at least fifteen days prior to date of examination.

THE CONNECTICUT STATE DENTAL ASSOCIATION will hold its mid-season clinic meeting at New Haven, Conn., on December 12, 1928.

THE NORTH DAKOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at Grand Forks, North Dakota, January 8-11, 1929. Applications for examination must be in the hands of the Secretary by December 29, 1928.

GILBERT MOSKAU, *Secretary,*
Grand Forks, N. D.

THE MINNESOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting on January 11, 1929, at the College of Dentistry, University of Minnesota, Minneapolis, Minn. Applications must be in the office of the Secretary by January 1st, 1929.

DR. F. E. COBB, *Secretary,*
601 Donaldson Bldg., Minneapolis, Minn.

THE CHICAGO DENTAL SOCIETY will hold its sixty-fifth annual meeting and clinic January 14-16, 1929.

The Chicago Dental Society wishes to announce its 1929 Annual Meeting and Clinic at the STEVENS HOTEL. Please take notice of change from the Drake Hotel to the Stevens Hotel with its three thousand rooms and with ideal conditions for staging the yearly classic.

All members of the American Dental Association are cordially invited to attend. Preliminary programs will be mailed to all members of the A. D. A. sometime in December of this year. The program will be divided into eight sections, as follows:

Section I—Operative Dentistry.
Chairman: O. J. Olafsson, 55 East Washington Street.
Secretary: E. J. Krejci, 7060 Clyde Avenue.

Section II—Full Dentures.
Chairman: R. O. Schlosser, Northwestern University.
Secretary: E. C. Pendleton, Chicago College.

Section III—Partial Dentures; Crown and Bridge.
Chairman: Stanley D. Tylman, 185 North Wabash Avenue.
Secretary: W. H. Kubacki, 2949 Milwaukee Avenue.

Section IV—Mouth Hygiene, Children's Dentistry.
Chairman: E. E. Graham, 58 East Washington Street.
Secretary: E. W. Swanson, 25 East Washington Street.

Section V—Orthodontia.
Chairman: B. O. Sippy, 30 North Michigan Avenue.
Secretary: C. R. Baker, 708 Church Street, Evanston.

Section VI—Oral Pathology.
Chairman: E. H. Hatton, Northwestern University.
Secretary: J. R. Blayney, University of Illinois.

Section VII—Oral Surgery.

Chairman: J. E. Schaefer, 55 East Washington Street.

Secretary: Eli Olech, 4259 West Madison Street.

Section VIII—Radiology.

Chairman: E. H. Thomas, 30 North Michigan Boulevard.

Secretary: M. A. Root, 636 Church Street, Evanston.

The Program Committee is under the direction of Frederick B. Noyes, assisted by Stanley D. Tylman, Vice-Chairman; I. G. Jirka, Charles R. Baker and Howard Alexander.

Louis E. Jelinek, *President,*
Hugo G. Fisher, *Secretary,*
185 North Wabash Avenue, Chicago, Ill.

THE DELAWARE STATE BOARD OF DENTAL EXAMINERS will hold its next meeting in the Municipal Building, Tenth and King Streets, Wilmington, Del., January 16-17, 1929, from 9:00 A. M. to 5:00 P. M.

For further information, address

W. S. Combs, *Secretary,*
Middletown, Del.

THE DALLAS MID-WINTER DENTAL CLINIC, sponsored by the Dallas County Dental Society, will be held at Dallas, Texas, February 11-13, 1929.

The clinicians for this meeting are Drs. T. W. Maves, Cleveland, on oral surgery; James W. Crawford, Milwaukee, on prosthetics; Menifee R. Howard, Denver, on surgery; also, a man of national repute yet to be selected, on orthodontia.

Brooks Bell, Jr., D.D.S., *Secretary,*
Baylor University College of Dentistry,
Dallas, Texas.

THE TEXAS STATE DENTAL SOCIETY will hold its forty-ninth annual convention at Beaumont, Texas, April 16-19, 1929.

A cordial invitation to attend is extended to all ethical dentists who are members of state societies.

For information relative to exhibits, write to Dr. John E. Story, Chairman, Goodhue Building, Beaumont, Texas.

J. G. Fife, *Sec'y-Treas.,*
Medical Arts Bldg., Dallas, Texas.

THE CONNECTICUT STATE DENTAL ASSOCIATION will hold its sixty-fifth annual convention at Waterbury, Conn., April 30 and May 1-2, 1929.

THE VIRGINIA STATE DENTAL ASSOCIATION will hold its annual meeting in the Hotel Danville, Danville, Va., April 30-May 2, 1929.

A. M. Wash, D.D.S., *Sec'y-Treas.,*
504 Medical Arts Bldg., Richmond, Va.

THE NORTH DAKOTA STATE DENTAL ASSOCIATION will hold its next annual meeting at Grand Forks, N. D., May 14-16, 1929.

L. I. Gilbert, D.D.S., *Secretary,*
Fargo, N. D.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its sixty-first annual meeting at Rochester, N. Y., on May 15-17, 1929.

A cordial invitation is extended to all ethical dentists who are members of state societies to attend. The Society will be pleased to extend a cordial welcome to all ethical Canadian dentists also.

For information with reference to the exhibits, write to E. G. Link, 226 Cutler Bldg., Rochester, N. Y.; clinics, John T. McIntee, Chairman, Cutler Bldg., Rochester, N. Y.; literary exercises, etc., A. P. Burkhart, Secretary, 57 East Genesee St., Auburn, N. Y.

The Third LATIN AMERICAN DENTAL CONGRESS will convene on July 20, 1929, at Rio de Janeiro, Brazil. In addition to the Congress there will be three international Expositions: Manufacturers' Exhibits, Dental Pedagogy, and Dental Publications. There are excellent hotels to accommodate the large attendance expected.

THE STOMATOLOGICAL CONGRESS will hold its next session in Paris on October 22-29, 1929, at the School of Medicine and at the French School of Stomatology.

The following matters have been selected by the Committee of Organization as the subjects of reports:

1. *Septicemias of Bucco-Dental Origin.* Lecturers: Messrs. Thibault and Raison.

2. *Surgical Treatment of Affections of the Periapex, Scraping and Resection, Deferred Results.* Lecturer: Mr. Lacronique.

Another subject to be submitted for discussion is *Prophylaxis of Dental Caries.*

With the object of unifying and increasing the efficiency of the work of the Congress, the Committee of Organization has decided to request the members to confine their communications to the two subjects which are the object of the reports.

However, in order not to keep away from the consideration of the Congress the original subjects already in the course of preparation, two meetings will be reserved to them.

An important exhibit of instruments and apparatus dealing with stomatology will be held at the School of Medicine during the duration of the Congress. There will be also an exhibit dealing with the history of stomatology.

For all further information, address Secretary-General Dr. LeClercq, 9 Bd. de la Madeleine, Paris (1), or the permanent Secretariat of the Congress, Béclard Hall, School of Medicine (A. D. R. M.), Rue de L'École de Médecine, Paris (6e).

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THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., EDITOR

ALLAN M. JOHNSON, A.B., D.M.D., ASSOCIATE EDITOR

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The editor and publishers are not responsible for the views of authors expressed in these pages.

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OUR COVER THIS MONTH

That strip of land on our map known as New Mexico is really a chip off the old block—Mexico—south of our boundary lines, and contains many people who still display the characteristics and customs of the older region. New Mexico always had a notable array of Indian tribes as a portion of its population, and it required a number of years to bring them under subjection, but it was finally accomplished and they are now living a rather peaceful and settled life. They succeed in erecting very snug and comfortable living quarters in the adobe style of building, that is, with sun-dried bricks made of mud with straw as a binder. The Hopi Indians, members of the Pueblo tribes, occupy many of these villages in New Mexico and Arizona, and display some skill in farming, weaving and as silversmiths.

Our COVER PICTURE shows one of these pueblos situated in the Taos section of New Mexico. This particular village, according to historical records, was in existence when Columbus landed in America. However, like the vanishing race itself, these villages are decreasing as time goes on.

Editor's Corner

Twenty Years Ago and Now

With this issue the writer completes twenty years as editor of THE DENTAL DIGEST. At such a milestone it is natural to look back and make some comparisons.

Conditions in the practice of dentistry in 1908 were unfavorable to both dentists and patients. Fees had no background of knowledge of costs and were based largely upon the desire to secure each case that presented. With occasional brilliant exceptions they averaged about as follows: extractions from 25¢ in simple cases to about $5.00 in impactions (the sum received by the dentist was generally subtracted from the price of the denture, if one was to be made); amalgam fillings from 25¢ to $2.00; gold-foil fillings from $1.00 to $6.00; gold or porcelain crowns from $2.00 to $10.00; vulcanite dentures from $5.00 to $15.00 each; gold dentures from $25.00 to $75.00 each. Collections were slow and many of the sums earned at these fees were never received.

At that time there were believed to be about 35,000 dentists in active practice in the United States; a distressingly large proportion of these men had proved themselves unworthy of credit for dental supplies, and sales had to be made to them for cash with the order or C. O. D. It is now readily understood why so many dentists worked three evenings a week and Sundays, why these men had neither time nor money for postgraduate courses, why vacations could rarely be taken, why their families were not well protected with insurance, and why they looked forward to sickness or old age with apprehension. A prominent dentist who knew every practitioner in his State told Dr. Williams that not 10% of them could plan attendance at the annual State meeting without wondering where they would get the money for a new suit of clothes so that they might appear with credit.

Conditions were perhaps even more unfavorable to patients. Here and there dentists were rendering excellent service, but on the average the dentist's mind was so filled with his own financial worries that he was unable to give the patient his undivided attention, and only a small proportion of patients received a high quality of service. Even if the dentist's mind had been free, such low fees would have made good service impossible. Patients were often persuaded to accept a form of service which was unfavorable or injurious, because it was a form from which the dentist could make a living profit.

The writer graduated from the University of Michigan in 1900 and for several years practiced in small towns and experienced the bitter competition which was then the rule. He found, however, that when all the facts were laid before prospective patients, a considerable percentage were willing to pay fees which made it possible for them to receive the kind of service that they expected and to pay their bills promptly.

In 1906 the writer entered the employ of The Dentists' Supply

Company for the purpose of finding out how we could learn to make better full dentures. His work took him about the country. Everywhere he found poverty a barrier to professional advancement. A few strong men, by efforts which should have been unnecessary, leaped the barrier and went ahead; the average dentist died before it.

Urged by the conviction that, if dentists could free themselves from financial anxiety, could give patients undivided attention and could afford to view each case as an opportunity to do better than ever before with the knowledge that they were being paid for what they did, they would leap forward to achievements then undreamed of, he persuaded The Dentists' Supply Company to purchase *The Dental Digest*, and began to preach the gospel of sound business principles in practice, inspired and guided by professional ethics. It was a venturesome thing to do. The magazine had only 600 subscribers, no society affiliations, only one regular contributor, and no one in the office who knew anything about magazine publication. Furthermore, any one who talked the least sense about business in practice was anathema to the whole profession. So he invented *Brother Bill*, who wrote a series of letters from his experiences and his heart. They went around the world. The magazine closed the first twelve months of its experience with 12,000 paid subscriptions. It went steadily onward until nearly 22,000 dentists paid for it annually.

It is interesting to observe what the profession has done for itself in these twenty years. Progress covers so many subjects and has been so great in each that a book would be needed for the story, but we may note a few outstanding achievements in three fields in which this magazine has been especially interested: economics, full denture service, and one phase of preventive dentistry.

We are learning that, as Dr. Van Woert told us, we cannot on the average do justice to our patients unless we at the same time do justice to ourselves. We are getting ready to learn what service costs the office and to begin to base fees upon that knowledge. When we learn that nothing is to be gained by secrecy, but that much is to be gained by free and intelligent discussion, we shall be ready for other fruitful steps.

Artificial denture service has raised itself from the bottom of the ditch. The teachings of Bonwill, Snow, Gritman, Wilson and others are better understood than ever before. Williams and Gysi have left their indelible print upon it. It is now beginning to be possible for patients to get excellent denture service.

Thanks to the work of a host of investigators, among whom we honor our own Percy Howe, we are getting our first inklings of some of the probable causes of oral disease, including dental caries, and of what we may do to help prevent it. Fones is teaching us to apply the principles for which D. D. Smith, C. M. Wright and others pleaded—the controlled practice.

Let us not fear that we shall talk ourselves out of work. The most we can hope for is that some of the youngest among us may talk themselves out of the drudgery and anxiety of certain forms of service into easier forms, better for themselves and for their patients.

Those of us who have been long in service look forward to a day when our successors will no longer be repair-men in the sense that we have been, but when healthy and happy patients will return at frequent intervals to be kept healthy and happy by slight service, and when the dentist will be highly esteemed as one of the most important diagnosticians and servants in the entire realm of scientific health service.

GEORGE WOOD CLAPP.

GUM STIMULATION . . *improve it*
GUM IRRITATION . . . . . *reduce it*

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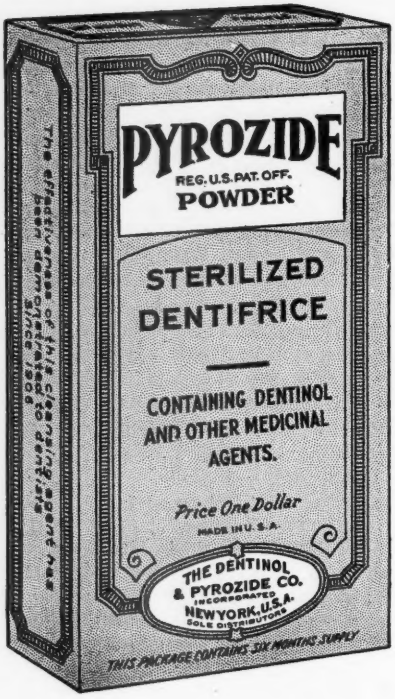

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MODERN DENTISTRY *Goes on the Air*

The Ethics of the Profession make advertising unethical and it is of paramount importance that the public should be made aware of the vital relationship between the dentist and preservation of good health

As the most effective means of spreading the doctrine of preventive dentistry and its relation to disease prevention, the Forhan Company, makers of Forhan's for the Gums and Forhan's Astringent, and the mouthwash, Forhan's Antiseptic Refreshant, have sponsored a series of twenty-six health talks which are being presented to the radio public each Friday at twelve o'clock Eastern Standard Time.

It is the sole purpose of these talks to impress upon the layman the true worth *of preventive dentistry and its relation to* the correct practice of oral hygiene. Each phase of oral development and decline, cause and effect, is covered in detail.

We urge you to tune in on this health hour. If you have any suggestions which you think may increase the value of these talks, please do not hesitate to send them to us. They will be gratefully received.

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When Knighthood was in Flower

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WHEN maidens fair sent gallant knights to joust in tournament or war in crusades, the knights had to hurry back if they hoped to find their maidens still fair or their knighthood blooming. With no dentistry, we now know *why* the Dark Ages were dark!

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We owe a debt to the Past, but let us pay it in remembrance of its beauties and not by clinging to its outworn tools that have failed completely to meet the requirements of this modern age. Let "Trubyte Teeth" grace your banner.

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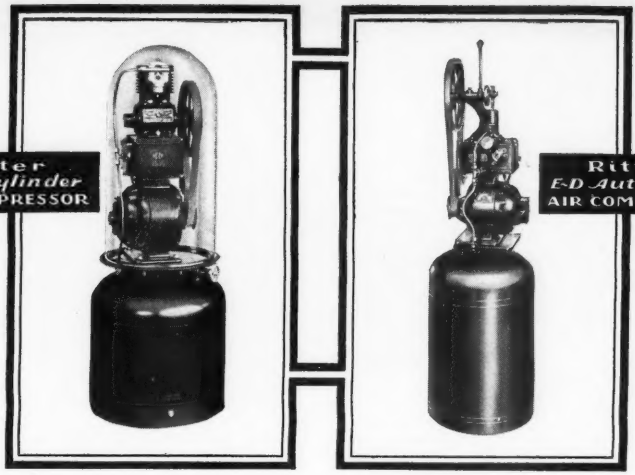

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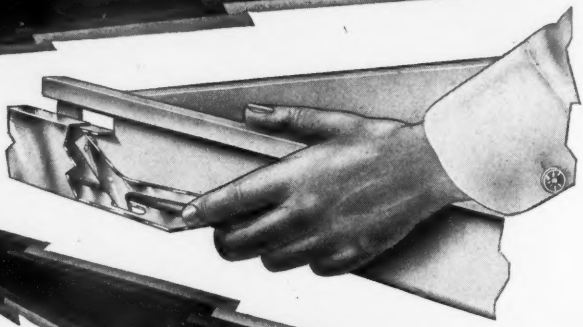

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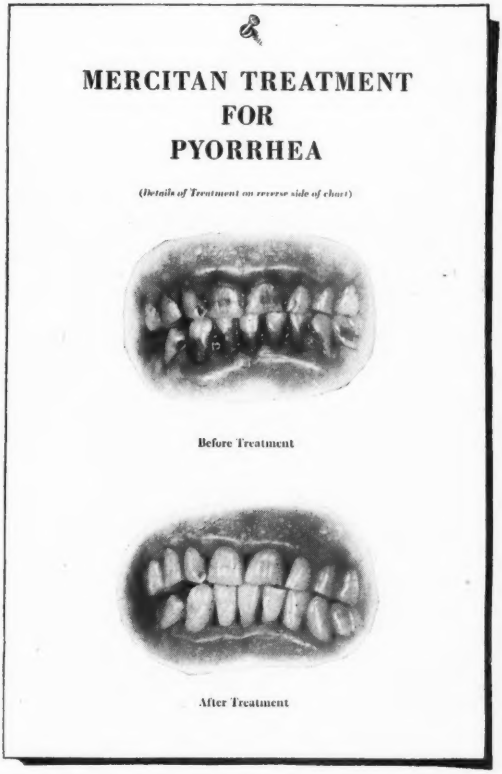

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Johnny Farrell

Johnny Farrell,
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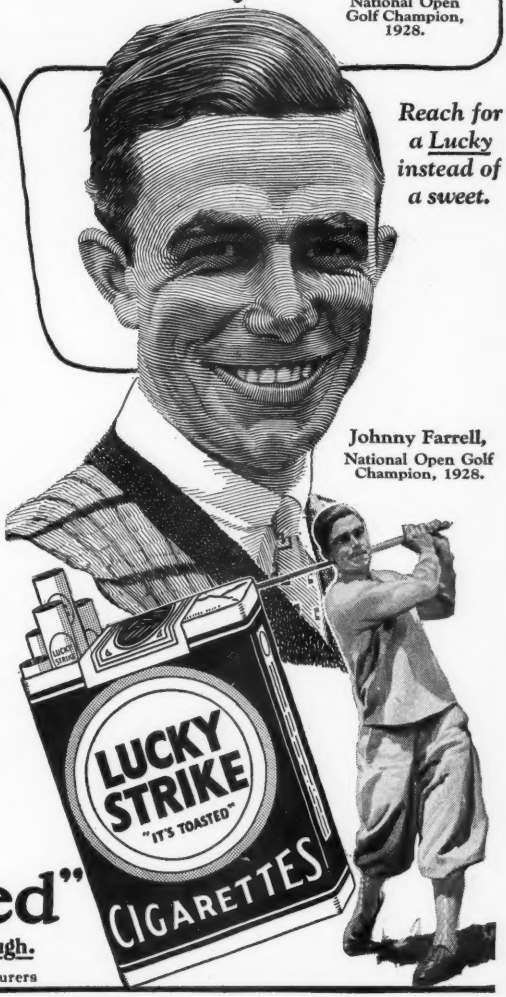
Fattening sweets? No! Heavy, rich desserts? No! Eating between meals? No! Say "No" and light a Lucky instead.

Reach for a Lucky instead of a sweet.



Johnny Farrell,
National Open Golf
Champion, 1928.

"It's toasted"

No Throat Irritation - No Cough.

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The Baneful Acids

The Predisposing Cause of Dental Decay

Acids may be neutralized and their harmful effects destroyed by the use of a harmless alkali—Phillips Milk of Magnesia—which seems to act like a specific in these conditions.

During the last 50 years Phillips Milk of Magnesia has been employed by physicians and dentists as the ideal antacid for patients suffering from acidosis or local acidity.

It is important to carefully specify Phillips Milk of Magnesia because

1. It is the standard product, is pure and free from the slightest trace of deleterious substance.
2. It is a hydrate in colloidal suspension, possessing a special affinity for acids.
3. It is 4 times as effective as a saturated solution of bicarbonate of soda and 50 times as powerful as lime water in neutralizing acids.
4. It is non-irritating to mucous membranes, does not evolve gas, is non-abrasive.
5. Acts immediately and efficiently and has no disagreeable effects.

PHILLIPS Milk of Magnesia

Write to us for descriptive literature outlining a complete course of treatment for combating acidity—the prime cause of dental caries—which consists in the use of Phillips Milk of Magnesia—internally to combat acidosis, locally as an alkaline mouth wash—in association with Phillips Dental Magnesia (a compound dentifrice).

CAUTION. The dentist is advised to beware of imitations. Phillips Milk of Magnesia supplied in 4-ounce and 12-ounce bottles. Phillips Dental Magnesia (a compound dentifrice) supplied in 2-ounce collapsible tubes. Obtainable from druggists everywhere.

"Milk of Magnesia" has been the U. S. Registered Trade Mark of The Charles H. Phillips Chemical Co. and its predecessor Charles H. Phillips since 1875.

Prepared only by **The Charles H. Phillips Chemical Co., New York and London**

Novol

Chlorbutanol in Novol

CHLORBUTANOL is an important ingredient in Novol Anesthetics. It adds to the efficacy and safety of Novol. Its functions are as follows:

1. **Chlorbutanol in Novol intensifies the anesthesia.**
2. **Chlorbutanol in Novol renders the injected area resistant toward bacterial invasion. Unlike germicides or strong antiseptics, Chlorbutanol does not injure the healthy delicate tissue cells and therefore does not interfere with the healing of the wound.**
3. **Chlorbutanol in Novol acts as a sedative and hypnotic, exerting a quieting effect upon the patient following the injection.**

Samples of Novol will be gladly sent you on request. Please check the form you prefer.

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S. S. White Card Index System No. 2

The Card Index System affords the simplest known system of keeping accurate accounts with your patients. Little work is required; the chances for mistakes minimized; in a moment you can tell exactly how any account stands, what cash you have received and how you have spent it.

Commence any time—now better than later

Outfit consists of 200 Record Cards, 3 sets of alphabetical Guide Cards, 25 Cash or Bill Cards, and 50 Examination Blanks, with follower block, in black metal case with lock and key.... $13.00
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A Full week's appointments seen at once

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Ample space for memoranda and cash records. Five years' calendars.
Fine paper, well bound. Price $1.50

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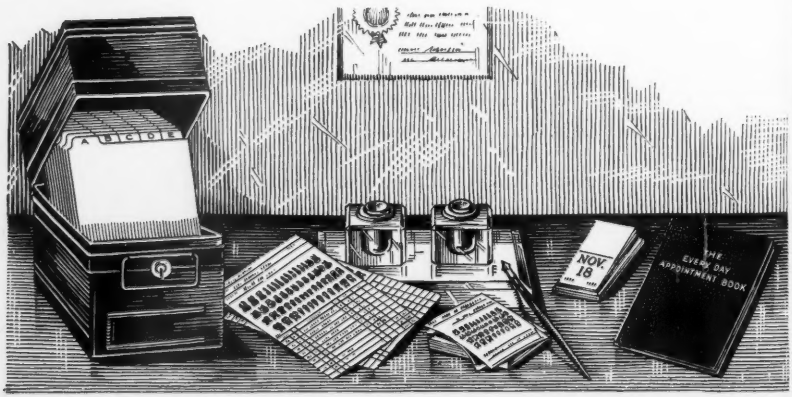
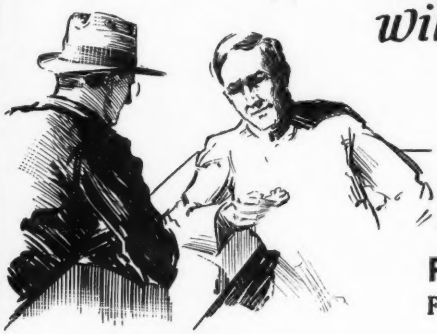


The Attachments Your Laboratory will Recommend



Supplee Attachments

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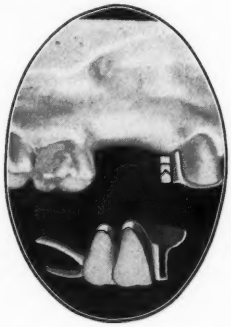
For Tooth or Tissue-Bearing Appliances



If attachments are indicated on your next removable bridge or partial denture let your laboratory suggest the proper Supplee Attachment or request No. 3 for free bites and No. 5 for close bites.

LONG YEARS OF CHASING the rainbows in trick attachments and their impressive array of instruments have only served to bring the profession and dental laboratories back to Supplee Attachments.

Despite their simplicity, Supplee Attachments do all that any attachments can do—and at a fraction of the cost.

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No. 3 No. 5

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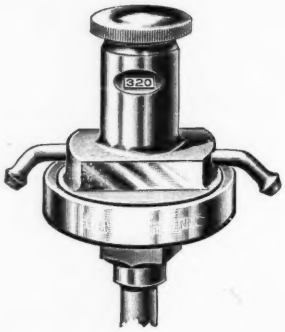
SNOW'S
INDEX GAS REGULATOR

Patented October 31st, December 19th, 1893



THIS Regulator was the first one made which combined in a convenient form *all* the desirable requisites for a Gas Regulator for a Dental Vulcanizer.

Its sensitiveness makes it the best regulator for any of the plastic materials as well as rubber vulcanizing and Hecolite pressing.

Both nozzles for the attachment of Rubber tubing are horizontal with drooping ends, and it is impossible for the tubing to fall over and collapse, impeding the flow of gas.

Manufactured only by

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Made in U. S. A.

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Enclosed $1.00 for Sample box "Herakles"

Dr.....
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A Method of Making a Permanent Record of Mould and Shade on the Denture Itself Which Should Commend Itself to All Thoughtful Practitioners.

DOCTOR:

Why not avail yourself of that area provided by nature which requires relief to the depth of at least 1m. over the hard center area in the average case, and stamp in small letters the Mould and Shade of the teeth used on your Trubyte Dentures? *There is positively no irritation,* as the lettering cannot come in contact with tissue. That this idea is sound, both in theory and practice, is attested by the unqualified endorsement of some of the best-known prosthetic specialists in the country.

The cost to the laboratory in time and effort in making use of this system is so slight that most laboratories will make no extra charge for this most convenient service, provided you definitely request it. If your laboratory has not already installed the outfit, if they will communicate with the manufacturers, they have a proposition to make them which should be most interesting.

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Why Lavoris Is An Ideal Hygienic Agent

THE two beakers demonstrate the effect of Lavoris upon sticky mucoid material, food debris about the teeth or exudates upon the gums or other oral tissues. The beaker on the left shows the final rinsings of the mouth after the usual brushing—apparently the tissues are practically cleansed. The beaker on the right shows a rinsing immediately following the other but when a 25% Lavoris solution is employed. A very appreciable amount of mucous and entangled debris will be noted.

It is evident that the usual method of cleansing leaves much to be desired, but with the Lavoris solution the result is a really cleansed surface. This is due to the action of zinc chloride in forming a light, flocculent non-adherent coagulum of mucoid material.

This detergence is followed by a freer outpouring from mucous glands of the membranes and a more complete cleansing of minute creases. Finally absorption is minimized, resistance stimulated and nature aided in its restorative and defensive reactions.

Since the perfection of the Lavoris process of manufacture more than a quarter of a century ago, zinc chloride has been available to the profession in an accurate, stable and agreeable mixture. The formula, as shown, represents the actual ingredients and involves no use of acids or other chemicals.

A professional supply of Lavoris will be sent you upon request.

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Active Ingredients in Grams Per Liter

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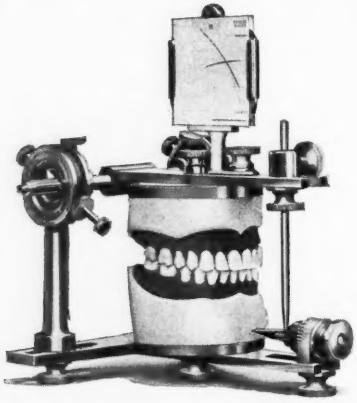
Menthol . . .	0.382
Ol.Cinnam . .	1.486
Formalin . . .	0.431
Saccharin . . .	0.361
Ol. Caryoph .	0.297
Alcohol 3%	

Lavoris Chemical Company
918 North Third Street
Minneapolis, Minnesota

S. S. White "Natural" Teeth

Save Time in "Set Up"



THE prosthodontist and the laboratory operator appreciate porcelain teeth that cut down the time of "set up" and at the same time permit of an artistic arrangement.

In the designing and carving of the molds of S. S. White "Natural" Teeth, such features were not only carefully considered, they were carried out.

The ridge laps are thin and tapering toward the cervical margins. A high "set up" on the ridge is accomplished with very little grinding.

The bites are practical and the lingual surfaces of the uppers conform with the labial surfaces of the lowers, assuring a snug fit in a close or open bite.

By the proper proportioning of the size, and the correct formation of each tooth in the set, upper teeth accurately interdigitate with lowers.

Anterior teeth are narrower on the lingual than on the labial side, just as nature has patterned the human teeth. Such a conformation facilitates the irregular alignment so often required in esthetic restoration.

Grinding of the occlusal planes has been greatly simplified by the milling process carried through with the pattern teeth on the Wadsworth Articulator.

Time is a very important factor in denture work. Use the teeth that save your time and produce superior results.

S. S. White "Natural" Teeth

Practice Builders — Time Savers

For Sale by Dealers

Booklet of Molds on Request

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Five Properties, Doctor

That the profession of today demands in the dentifrice it prescribes . . . and how Pepsodent includes each one.

1—Pepsodent provides a scientifically correct, efficient, yet harmless dentifrice for your patients — one that offers the utmost in tooth and gum protection.

2—It keeps the enamel of patients' teeth highly polished and pearly white. Thus mucin plaque adheres far less readily and teeth are more attractive.

3—As a mildly acid dentifrice, Pepsodent conforms to modern dental preference as against an alkaline formula.

4—Pepsodent actively stimulates salivary flow, for only in the degree that it is copious, fluid and alkaline does saliva best serve as natural mouth wash and protective fluid.

5—It possesses benefits to the soft, oral tissues. Its use, with vigorous massage, creates greater blood supply, hence greater resistance to bacterial attack. The calcium ion serves as a hemostatic and antiphlogistic agent.

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Please send me, free of charge, one regular 50-cent size tube of Pepsodent, with literature and formula.

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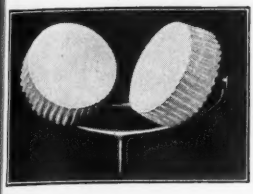

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Made of a special moisture resisting paper. Perfectly protects the headrest of your dental chair. Add a heretofore unattainable note of refinement to the operating room. Less than the cost of using towels.

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Mail the coupon, and we will send you free samples.

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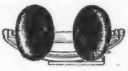
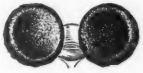


☐ S. S. White



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(16)

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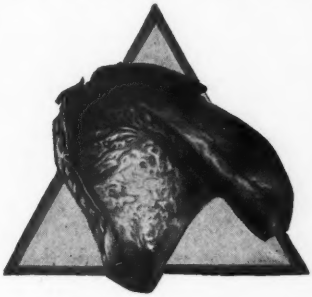

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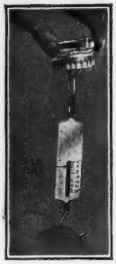

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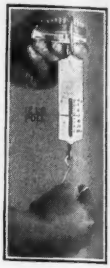

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(Dental Digest)

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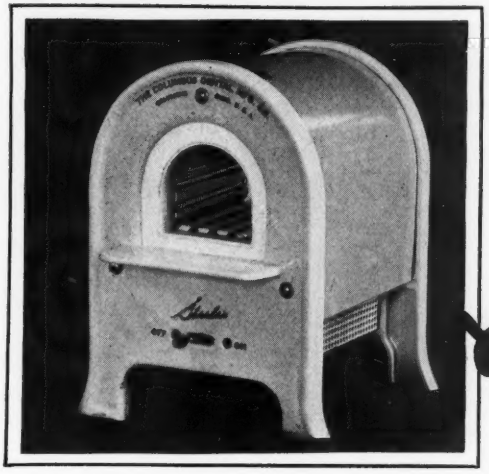

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